Gleanings in Bee Culture

Established 1873

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August, 1941

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XUM

The Monthly Honey Market

U. S. GOVERNMENT REPORT
Information from Producing Areas (last half of June).

California Points: Southern California—Pollen has been abundant and broodrearing nearly normal, except along the southern coast where broodrearing has been greatly reduced and many colonies are weak. Among some colonies, it is reported, the tendency has been to plug the brood chamber due to the slow flow. Black sage and wild alfalfa looked promising at the start but cool, cloudy or foggy weather prevented normal activity on the part of the bees and the crop from these and other sources was far below what was anticipated. In fact, it is reported that so far bees have gathered only half of the anticipated crop from early sources. White sage is still blooming lightly and bees are gathering a little good quality honey from this source. They are also working lightly on mustard, cultivated alfalfa and tarweed, but the principle crop is wild buckwheat, which has been yielding well and from which bees may obtain a fairly good crop, of color lighter than average. Many colonies show a larger percentage than usual of queens not mated. Colonies generally are getting back to nectar-gathering strengh after the swarming fever during the orange and black sage blooming period. The wild buckwheat plants have abundant nectar but the sugar content is reported low and bees in some sections are not gathering much Buckwheat honey. Demand has been limited to moderate at firm to higher prices, but the market has been unsettled in that some beekeepers are unwilling to offer at current prices and some members of the trade are unwilling to purchase at current prices. Beekeepers receiving, in case lots or more, per lb., at southern California delivery points—Orange, Water white, 5⅝-5¾c; Extra White 5¼-5⅜c; White 4¾ 5⅛c; Sage, Water White 5⅛ 5½c, few 5⅝c; Extra White 5-5¼c. White 4¾-5c; Sage-Buckwheat, Extra Light Amber 4 1/6c; Alfalfa and Alfalfa-Mesquite, Light Amber to Extra Light Amber, small lots Blythe area 3⅝-4 1/6c, mostly 3¾-3 5/6c. The beeswax market was firm. Yellow wax brought beekeepers mostly 23-24c, few lots 25c per lb., darker grades 20-22c per lb. delivered Los Angeles.

Imperial Valley—Cool, windy weather has checked the honey flow to some extent. However, normal temperatures should bring a resumption of the flow. Bees are reported in excellent condition. Amber to Light Amber Alfalfa has brought beekeepers 3¾c per lb. at country points. Sales to the Surplus Marketing Administration of Light Amber to Extra Light Amber Alfalfa at 4½c per lb.

Central California—Temperatures were somewhat above normal along the coast and somewhat below normal in the interior valleys. Light showers occurred along the coast. Colony conditions are very spotted. About half of the colonies are in good normal condition, while the balance is half to two-thirds of normal and short of stores. The condition of wild buckwheat plants is irregular, ranging from poor to good. Alfalfa is reported blighted in some areas, but bluecurl prospects are encouraging, with plants in good condition. Bees are also working on yerba santa, cascara, bear clover, snow brush and eucalyptus.

SUMMARY—Temperatures have been above normal during much of the time east of the Rocky Mountains, but often cooler than usual west of there. Rains have been locally heavy in the Central and Northern States, and in parts of the Southeast and the Plains States, but Southern California and Arizona have again been dry. Although the continued rainfall kept bees in the hives in many important producing areas during much of the early flow, when bees were able to work the flow was often unusually heavy and well-kept colonies in many of the Plains States and the White Clover Belt already have 100 pounds surplus or more. Colonies that were weak, however, as many were, had to build up on the early flow, and the size of the 1941 crop is still dependent on the weather of the next few weeks. Because of the heavy rainfall keeping bees in the hives swarming has been unusually serious in many sections, even where beekeepers made an effort to control it. More reports also received of supersedure and loss of queens than usual. Extracting will be later than normal, but in the White Clo-

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ver Belt some beekeepers have already started to take off comb honey. Early reports indicate that this year's crop of honey will be whiter than usual. So far the bees have gathered only half of the anticipated crop in Southern California, but a fairly good flow is anticipated from wild buckwheat. Rains curtailed bee activity in the Pacific Northwest, but a better Fireweed flow is expected than that of a year ago.

Stocks of honey throughout the country are now exceptionally light, especially since the Government purchase mentioned below, and many beekeepers are turning down orders because of a lack of honey with which to supply them. There is an undercurrent of strength to the honey market situation. Although market levels in many areas are little different from those of a year ago, a number of sections report that prices are ½c per pound above those of last season.

The Surplus Marketing Administration has purchased 3,558,000 pounds of honey for its School Lunch Program out of an authorized purchase total of 7,000,000 pounds. The purchase time was extended to June 27. This honey was all Light Amber in color or whiter and was purchased from beekeepers or beekeepers' organizations subject to inspection and meeting the U. S. No. 1 grade. The uniform price was 4½c per lb., f.o.b. specified assembly points. Purchases were restricted to States in the Intermountain Region and west to the Pacific Coast and were divided as follows: California, 1,744,800 pounds; Arizona, 1,110,060 pounds; Utah, 344,640 pounds; Idaho, 115,420 pounds; Colorado, 101,400 pounds; Oregon, 85,080 pounds; Nevada, 57,600 pounds.

Monthly Report of Honey Producers

Early in July we sent the following questions to honey producers: 1. At what price has honey been sold or contracted for, if any, in large lots (carload lots or less) in your locality during the past month for (a) extracted honey, per pound? (b) comb honey, fancy and No. 1, per case? 2. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) Comb honey, fancy and No. 1, per case? 3. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails (b) comb honey, fancy and No. 1, per section 4. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair or rapid. 5. How does the number of colonies that are in condition to store surplus honey this season compare with the number of such colonies last year? Give answer in per cent. 6. What is the condition of the honey plants at this time in your locality as compared with the average? Give answer in per cent. 7. What is the per cent of winter and spring loss of colonies (if any) in your locality? Give answer in per cent. 8. What is the present condition of the colonies in your locality as compared with normal? Give answer in per cent. The answers received are tabulated as follows:

		1.		2.		3.		4.	5.	6.	7.	8.
		Large lots.		To Grocers.		To consumers.			No.	Cond.	Pct.	Cond.
Rec. July	State. Name.	*Ex.	Comb.	Ex.	Comb.	Ex.	Comb.	Movement.	of colo.	of plants.	of loss.	of colo.
11	B. C. (A. W. Finlay)	.10½		.70		.95		Slow	100	100	15	100
11	S-Calif. (L. L. Andrews)	.05¼	4.00			.52	.22	Fair	90	80	10	90
7	SE-Colo. (Otis E. Adcock)	.04½		.37½		.46		Slow	100	100	4	100
7	E-Conn. (Allen Latham)			.75	5.00	1.00	.29	Fair	100	100	15	90
8	S-Fla. (C. C. Cook)	.05		.35		.35		Slow	90	100	10	100
7	C-Fla. (Harry Hewitt)			.50		.65		Slow	110	100	2	100
7	SE-Ga. (J. J. Wilder)	.06	.08*	.50	.55*	.60	.65*	Fair	90	100	20	95
9	NC-Ills. (A. L. Kildow)					.50	.15	Slow	100	90	8	110
7	NC-Ind. (T. C. Johnson)			.40	3.00	.50	.17	Fair	100	90	5	100
8	NW-Ind. (E. S. Miller)			.45	3.00	.65	.15	Slow	90	100	10	
18	W-Iowa (E. G. Brown)					.49		Rapid	125	150		110
14	C-Md. (S. G. Crocker)			.60	5.00	.75	.25	Slow	100	75	5	100
14	N-Mich. (Ira D. Bartlett)			.40	3.00	.49	.17	Fair	90	100		90
10	E-Mich. (L. S. Griggs)					.50	.19	Fair	75	40	30	80
7	S-Mich. (Floyd Markham)			.50	3.00	.65	.20	Fair	100	150	10	100
9	C-Mich. (E. D. Townsend)	.06						Slow		70		100
11	E-Minn. (Floyd W. Ray)	.05		.35		.45		Slow	100	110	10	110
9	W-Minn. (B.L.Morehouse)	.05¼		.42		.49		Slow	90	100	15	85
23	C-Nebr. (J. H. Wagner)	.06	2.40	.42	3.00	.47	.18	Slow	60	100	4	100
14	W-Nev. (Mrs.E.G.Norton)	.04½						Slow	80		2	
8	W-Nev. (Geo. G. Schweis)	.04½		.35		.45	.15	Slow	100	75		100
10	W-N. M. (C. A. Baltzley)	.05		.45		.64	.25	Fair	100	100	20	100
14	NW-N. Y. (Geo. B. Howe)			.50		.65		Fair	95	75	10	90
7	C-N. Y. (F. W. Lesser)	.06½						Fair	100	100	5	100
7	NW-N.C. (C.S.Baumgarner)						.25	Slow	100	100	10	100
10	SE-N. C. (W. J. Martin)	.06		.60			.20	Fair	100	100	6	100
3	C-Ohio (R. D. Hiatt)	.06½		.50	4.25	.63	.25	Fair	90	115		125
21	W-Okla. (C. F. Stiles)			.45		.63		Fair	100	100	10	95
8	C-Penn. (Harry Beaver)	.05½		.50	3.60	.60	.17	Fair	100	100	10	100
7	SE-Penn. (D. C. Gilham)			.70	4.25	1.00	.25	Slow	75	105	50	105
11	W-S. C. (E. S. Prevost)			.19		.20		Fair	80	90		
9	SE-S. D. (J. F. Norgren)			.35		.39		Slow	100	120	20	100
10	C-Texas (T. A. Bowden)			.45		.55		Fair	80	85	2	80
8	S-Texas (J. N. Mayes)	.04½		.40		.40	.10	Fair			15	50
9	S-Texas (H. B. Parks)	.05		.47		.55		Fair	110	150	2	100
16	N-Utah (W. H. Hendricks)			.37		.45		Fair	90	100	90	80
7	N-W. Va. (W. C. Griffith)					.45		Slow	125	100	20	150
11	N-Wyo. (Earl C. Reed)			.40		.45		Slow	80	75	10	75

*Chunk Honey.

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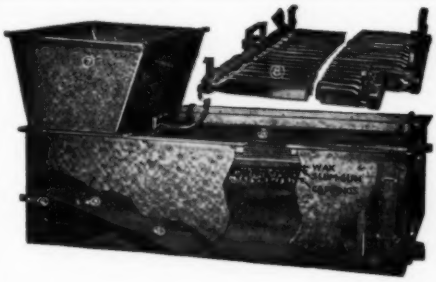

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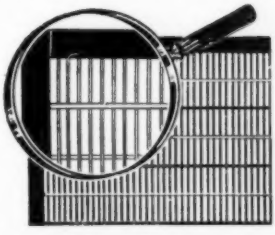

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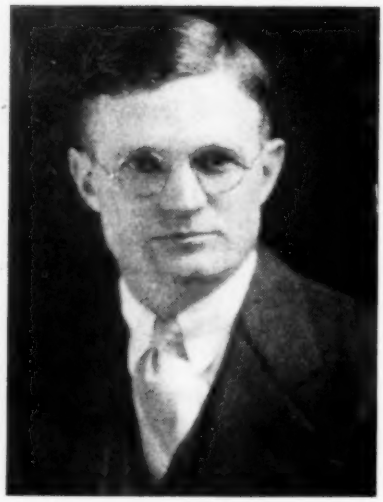

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Vol. 69
No. 8

Gleanings
in Bee Culture

August
1941

Filtration of Honey*

By R. E. Lothrop**
Eastern Regional Research Laboratory

and H. S. Paine
Agricultural Chemical Research Division, Bureau of Agricultural Chemistry and Engineering, U. S. Department of Agriculture

[As our readers may know there are two methods of clarifying honey for market. (1) By heating the honey to 130°F. and straining through two or three thicknesses of cheesecloth. (2) The rapid or flash method in which the honey is forced through a coil of pipe submerged in hot water and thence into an enclosed filter press using a finely pulverized diatomaceous earth called filter aid. The purpose of this is to catch particles of foreign matter that would pass through ordinary cloth. The honey is kept under heat for only a short time and when it comes out is crystal clear and ready for bottling.

The whole process was elaborately described in all the bee journals for December, 1934, and further amplified in Gleanings for July, 1935.

There has been not a little discussion of merits and demerits of pressure filtered honey ever since. The fear has been expressed that it would remove not only the color and its flavor but one or more of the elements necessary to make the honey so filtered meet the Government standard for a pure honey.

Dr. E. F. Phillips raised some questions on the subject in January Gleanings of this year, page 17. The matter was further discussed at the Ohio State Convention on January 28, 29 and 30, a report of which was given on page 162 for the March Gleanings, and again on page 160 editorially of the same issue.

Shortly after I went to Washington and while there had an extended conference with Mr. H. S. Paine, chief of the Agricultural Chemical Research Division, and his associate, Mr. G. P. Walton in the Bureau of Agricultural Chemistry and Engineering. Both assured me that if the directions were carefully followed using a filter aid of diatomaceous earth that there would be no loss of color, flavor, or of the colloids. They said, however, that if Bentonite or a finely pulverized charcoal were used, both color and flavor would be modified, or, in other words there was no need of using either and carrying the process too far or what would be called decolorization plus filtration.

When and How Pressure Filtration May be Carried too Far

It perhaps is not generally known that Mr. Paine and his associate, Mr. Walton, are continuing the work on honey, since Mr. Lothrop relinquished that work to go to the Philadelphia Laboratory. The work on filtration of honey was done by Paine and Lothrop prior to 1935.

A recent report on honey in the baking industry by Walton and Paine has not yet been published.

The average reader of this journal can get no idea of the activities of the Carbohydrate Division in the Bureau of Agricultural Chemistry and Engineering or its research work on honey until he visits the place. Honey research work is carried on with plenty of equipment in a well lighted, large room, 25 by 60 feet.

I took a series of pictures which I am here presenting, which, in connection with the legends beneath, will in part explain. Two of the pictures, Figs. 1 and 2, show apparatus for carrying "ultra filtration" which they do not recommend for honey for the reason that it removes color, flavor, and the colloids. Filter aid made of diatomaceous earth, leaves the honey unchanged but crystal clear, say Paine and his associates.

The use of Bentonite or charcoal to change a dark honey into a light amber or a white, might get the packer of it into a lot of trouble when the honey crosses a state line. We strongly advise not to take a chance.

*Agricultural Chemical Research Division, Contribution No. 29.

**Formerly in Carbohydrate Research Division which was incorporated in the Agricultural Chemical Research Division.

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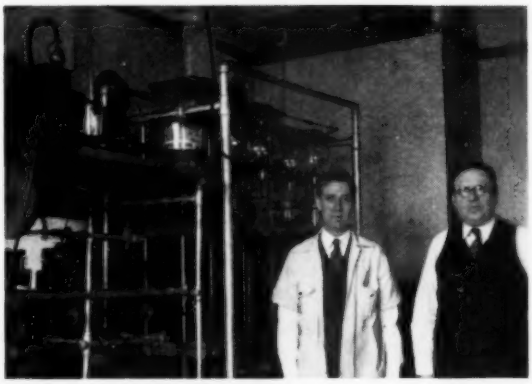


Agricultural Chemical Research Division, Bureau of Agricultural Chemistry and Engineering, U. S. D. A., Washington, D. C. Both pictures show the laboratory equipment used in the ultra-filtration of honey. Such ultra-filtration through standardized collodion films removes the colloids. Left to right: G. P. Walton, Associate Chemist, H. S. Paine, Head Chemist and Chief of Division.

Honey crystal clear made so by pressure filtration is all over the West and is creeping slowly into the East. So far as we know, not a pound of it has been seized or condemned.

Mr. Paine or his associates will send you directions on how to filter a honey so it will be of satisfactory quality.

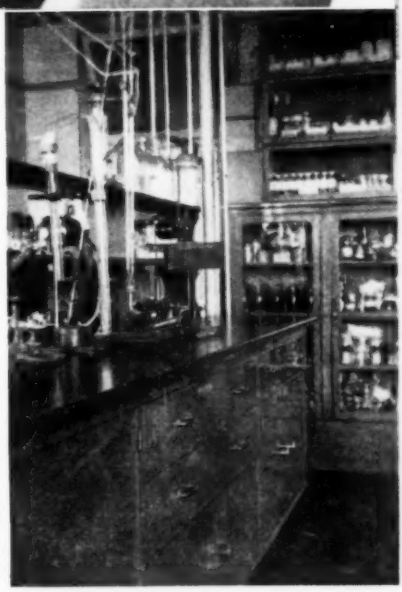
The objection claimed for this product is the expense and the fear that some packers or beekeepers, through lack of skill will not be able to filter their honey properly.

We will now let Mr. Lothrop and Mr. Paine go more into details.—E. R. Root.]

Discussions of honey filtration that have appeared in recent issues of "Gleanings" indicate the need of clarifying a number of points pertaining to this subject. Inasmuch as the writers have made a rather extended study of the suspended and colloidal particles occurring in honey and the methods by which the particles primarily responsible for turbidity may be removed from honey, they would like an opportunity to elaborate somewhat on this whole matter. The results of this study have already been published in scientific (1) (2) and beekeeping (3 to 8) literature. Before discussing honey filtration, however, it might be well to point out a few facts about the various kinds of particles that occur in honey, particularly with respect to their nature and behavior, and how they affect the properties and characteristics of honey.

From 90 to 95% of honey usually consists of a solution of the simple sugars dextrose and levulose, the solution in most cases being supersaturated with respect to dextrose. In addition, there are present smaller quantities of sucrose (cane sugar), the so-called "dextrins", "mineral" substances (inorganic compounds), flavoring compounds, coloring matter, etc., and a relatively small amount of suspended and colloidal matter. It is only the suspended and colloidal particles occurring in honey that will be discussed to any extent, since they are primarily responsible for cloudiness, and in addition affect other characteristics of honey. It should be mentioned, however, that the so-called "dextrins" occurring in honey are not chemically related to the true dextrins which are intermediate products in the transformation of starch to sugar, and **do not** contribute to the cloudiness of honey. Some investigations that have been carried out on the identification of these substances indicate that they are comparatively simple substances of the order of complexity of sugars such as melezitose that occurs in certain types of honey and are not chemically related to starch dextrins. The name "dextrins" was probably derived from the fact that, like starch dextrins, they are coagulated from solution by alcohol as a sticky mass.

The true colloidal particles of honey should be distinguished from the coarser suspended particles present. The sizes of particles in honey vary from relatively coarse particles that may be seen with the naked eye to exceedingly small ultra-microscopic particles. The former might be con-



Above: The laboratory devoted to investigation on the chemistry and properties of American honeys. G. P. Walton, Associate Chemist, engaged in this work, in the foreground.

Upper Right: Part of 1937 exhibit of foreign honeys and beeswax.

Lower Right: Part of apparatus used in vacuum removal of air bubbles from honey. Pfund color grader. Background, case containing part of 1937 exhibit of foreign honeys.

sidered as suspended particles, which in ordinary water solution would tend to settle out. They can be removed partially by straining through loosely woven material and more completely by filtering with filter aid. However, it should be pointed out that, because of the effect of the high concentration of sugars present, particles of a size that would settle out of ordinary water solutions remain suspended indefinitely in honey. The distinction between colloidal and ordinary suspended particles is somewhat arbitrary, being based primarily on size.

In general, colloids are the "gummy", non-crystalline substances of nature in contradistinction to substances such as salt and sugar, which crystallize readily. In a true solution, such as salt or sugar solution, the molecules of which the dissolved substance is comprised are distributed uniformly throughout the medium, and the dissolved substance can be considered as being dispersed to its maximum limit. For solutions of such substances as starch or proteins, the dispersion may reach molecular dimensions, but the molecules are so large that the solution formed from them will be "colloidal". Even such large molecules, however, are infinitely small in comparison with particles, of fine dust or chalk for instance, that may remain suspended in such a medium as honey.

Of the two classes of particles, i.e., suspended and colloidal, suspended particles contribute to the cloudiness of honey to a much greater extent than particles in a colloidal state, but do not influence such properties as viscosity (body), hygroscopicity (power to absorb and retain mois-

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ture) surface tension, absorption of flavors, etc., to as great an extent as colloidal particles. In fact, they have virtually no effect on these properties. As previously stated, suspended and colloidal particles are differentiated by size. However, when particles are reduced to a size comparable to that of the colloidal state, they are greatly affected by electric charges and other electric phenomena that do not appreciably affect larger particles. These charges on the particles in the case of honey colloids may actually stabilize the colloidal solution and prevent the individual particles from settling out. These effects have already been fully described by the writers in previous publications (1) (3).

The term filtration as applied to honey has often been used in a very loose sense. Filtration processes that include use of materials such as decolorizing carbon can hardly be described as simple filtration, since the carbon functions primarily as an absorbing agent and does not promote filtration to the same extent as does a filter aid like diatomaceous earth. In fact, in sugar refining processes where special carbons are used to decolorize sugar solutions, a filter aid is added with the carbon to facilitate removal of the carbon from the solution. The use of decolorizing carbons would remove some of the flavoring constituents and coloring matter. Such processes have been described by others for treating honey, not in connection with filtration, but for the purpose of removing undesirable color and flavor. Likewise, the use of bentonite is also quite distinct from filtration with diatomaceous earth and is not recommended for ordinary filtration of honey. Whether or not such processes should be used for treating certain types of dark, strong-flavored honey is an entirely separate and distinct matter and has no relation to filtration.

The aim of filtration is to remove most of the suspended particles present in honey that are responsible for turbidity, and which, if not removed, will later tend to separate and form objectionable surface scum layers. Filtration under pressure, using a small quantity of a rapid-filtering diatomaceous earth filter aid as has been described by the writers (8), (9), effectively removes most of the suspended matter, but has virtually no effect on the colloidal constituents. This has been determined by measuring the colloid content of honey samples before and after filtration through rapid-filtering diatomaceous earth.

Diatomaceous earth consists of small porous particles of inert silica. The result of the honey passing through this material is almost exactly analogous to a straining process, the only difference being that the openings through which the honey passes are smaller than those of cheesecloth or other media commonly used for straining honey. This results in a closer and more uniform straining process. Diatomaceous earth does not remove flavoring or coloring substances from honey; dark honeys are not made lighter in color, nor are strong-flavored honeys made less strong in flavor by this process. The quantity of suspended matter removed does not affect the "body" of the honey in any way. In this connection it may be pointed out that careful laboratory experiments show that even complete removal of colloids from honey reduces the "body" of the honey only to a very slight extent. The excess "body" of honey over sugar solutions of equal water content is due primarily to the "dextrins" and other non-sugars of the honey, and not to the colloids.

It has been claimed that honey is damaged by overheating during filtration since it is difficult to get the filtering finished before damage occurs. This should not result if the process is carried out in the correct manner; the honey can be heated rapidly to filtration temperature just before it enters the filter by means of a coil immersed in warm water, and in this way the total time the honey is at increased temperature is reduced to a minimum, which is usually only a few minutes. In addition, better control of the temperature can be obtained by the rapid continuous process since local overheating, such as occurs frequently in heating large batches of honey, is avoided. It was found that honey could be filtered with a rapid-filtering diatomaceous earth by raising the temperature to not over 125°F., the honey being at this temperature only while passing through the coil and filter. The honey can then be bottled and cooled immediately so that altogether it is under heat treatment for a much shorter period than is the case with ordinary heating and straining processes.

(Continued on page 534)

Shipmast Locust

By J. T. MacMillan

Black locust, *robinia pseudoacacia*, according to Lovell is, "One of the finest honey trees of eastern and southern states. Blossoms for about ten days in May or June yielding a large amount of heavy-bodied, water-white honey of mild flavor. Unreliable yielder; yields sparingly in some seasons; and not blooming at all in other seasons."

My own observations for six years bear this out—with a vengeance. At the home apiary, and two others about 15 miles away, I've never seen a drop of nectar from the locusts. Pendulant white blooms of a beauty and fragrance indescribable; thousands, but not a drop of locust honey in the hives. This is a locust locality, yet so seldom have I seen a honeybee on a cluster of the pea-flower blossoms I've given up hope for even

Shipmast locust in the state of New York.

the traditional seventh year of bounty. Many other beekeepers of this area—Dutchess County, New York, and south to Long Island and the sea—echo my mournful plaint, asking "Why?"

Perhaps U. S. Forest Service Circular No. 379 contains an answer. The title is, "Shipmast Locust, A Valuable Undescribed Variety of *Robinia Pseudoacacia*," written by Oran Raber, ecologist.

First a little history of locust trees might not be amiss. They are native to Central and Eastern America south of Philadelphia. Geologists have found definite evidence of two species of locust in Europe, both long since destroyed by the advancing ice sheet of the glacial age. Their disappearance was complete until re-introduction from America in 1653; and now some Central European countries rate them as honey plant number one.

In 1680 Captain John Sands, trading along the New England and Southern Atlantic coastline, brought several locust seedlings to Long Island from Virginia. At least two were planted at Roslyn and are yet standing a few steps from the Washington Inn, none the worse for their venerable 260-year age. One is over 12 feet in circumference. Their sprouts were cut, as local tradition insists, by American soldiers during the Revolution and used for posts. Another Captain Sands locust is growing on the Isaac Coles estate at Glen Cove.

These trees and their immediate offspring are generally regarded as the progenitors of most present day locusts on the east coast, and north of Philadelphia. As early as 1882 one man—John Hicks of Roslyn—noticed the occurrence of two varieties of locust in that vicinity. These long-forgotten differences are now resolved by Raber into the common or black locust with its myriad of minor dissimilarities due to location, etc.; and the yellow or shipmast variety introduced by Captain Sands. Neither being native to New England, they have been naturalized there and in New York and New Jersey, according to all investigators.

Raber says, "The Quakers early recognized its (Shipmast) value, and propagated it extensively with the result that in the 260 years since its introduction it has been generally established throughout northern and western Long Island". Also traceable to the good works of the Society of Friends, shipmast has been found at Pawling and Rye, New York; Moorestown, Shrewsbury and Mercerville, New Jersey; general vicinity of New York City; and Sagamore and Sandwich, Massachusetts. Also, I have seen groves at Purchase and

(Continued on page 536)

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License for Beekeepers

By Clarence Tontz

A constant menace to the beekeeping industry are persons who call themselves beekeepers simply because they have some hives of bees "out back" which they open up every fall to take out the honey, if any.

The hot bed of AFB is found with these beekeepers. There are thousands of such hives of bees over our United States that are opened (for the honey) once a year, if that often. There are tens of thousands that have never been seen by a bee inspector. The inspectors are not at fault. It is financially impossible to inspect every last apiary.

A few years ago in a commercial beekeeper's outyard during the spring inspection for AFB we found a few colonies mildly infected. We knew of no other bees close by and a search revealed none. However, as the summer wore on we constantly discovered more colonies infected in this particular apiary.

We were just the hired beemen. Our paychecks weren't hurt a bit, no matter how many colonies the boss lost. But if there is anything that would make a beeman swear, it is having to slip some Cyanogas into the entrance of a rousing colony five stories high that he has been working with all spring, and throw the fat, white-capped combs of honey into the pit fire.

After considerable loss from FB, the local bee inspector located the source the next spring. A farmer had three hives of bees about a quarter of a mile away from our apiary. The way they were hidden, we think the inspector deserves a medal for finding them. The bees were filthy with disease. Asked by the inspector if he had ever had any experience with foulbrood, the owner replied, "Sure, my chickens had it last spring."

Here was a person who retained some bees that were "thrown in his lap". He had hived swarms that settled on his property. He proudly admitted that all he knew about bees was that "they were led by a king and queen". He had, he said, come to the conclusion that "there wasn't much in keeping bees". In three years one of his colonies somehow

This apiary of assorted hives is inspected when a busy inspector can make it around. Its main crop is swarms of bees.

This neat apiary of skyscraper colonies is given two regular inspections, spring and fall, by the owner. Also a sharp watch is kept for fb throughout the season.

Which of the two beekeepers would you rather have for your neighbor?

produced 20 pounds of honey. He was pretty mad when the inspector destroyed his bees and scorched out his hives.

What Are We Going To Do About This Deplorable Condition?

Even if we do produce 100 percent disease-resistant bees, it will be a long time, if ever, before the strains of bees susceptible to AFB are replaced.

I will not pretend to present here a glorious solution to this problem. However, I firmly believe the following theory (and it's not altogether my own), would be a step in reducing the unnecessary losses from AFB.

We need a law (with teeth in it) requiring a person who keeps bees to have a license. The license would not be a penalty for keeping bees, but would be a protection not only for the beekeeper who already keeps his bees clean, but for every person who keeps bees. The license need not be costly, say a dollar, and good for life as long as it is not revoked for violations. Every person applying for a license to keep bees would be required to pass a simple but practical examination on beekeeping. If deemed necessary, the inspector would give the applicant a few pointers on keeping bees. Especially would he be shown how to detect AFB. Every beekeeper would be required to (1) thoroughly examine every hive of bees in his possession once in the spring and once in the fall; (2) promptly destroy infected stock, (3) and fill out a brief report for the inspector after examining his colonies. The inspector would make check-up inspections in a few apiaries of every county closely following the periods as prescribed when the beekeepers are to examine their bees. This would have the same effect as a game warden on hunters. Few hunters are ever required to show their licenses to a warden; but hardly a one would dare go afield without it.

Beekeeping as an agricultural pursuit, has not the respect it deserves. Cows, chickens, hogs, etc., don't come gratis like swarms of bees sometimes do. The other livestock has to be bought and usually the purchaser is determined to care for them so that they will make him a profit.

The fact that bees have wings and can't be kept in bounds like other livestock, makes our neighbor beekeeper's business likewise our business. Under our present law anyone can, acting upon a whim, hive a swarm of bees and forget them. The neighbor beekeeper can do nothing if this swarm becomes infected and is (in a weakened condition) robbed out by his bees (thereby infecting them), even though he may suffer a loss of several hundred dollars.

Undoubtedly, there will be readers who will declare that requiring beekeepers to have licenses is infringing on the good American freedom of every individual, and that the measures are too harsh.

Is it freedom for a beekeeper who can only hope and pray that his bees will not be infected by a neighbor's bees which he knows to be neglected and ignorantly managed? If the measures are harsh, then they need to be, for AFB is a harsh enemy that gives no quarter.

Stillwater, Okla.

A neat apiary among the spruce trees in the state of Washington.—Photo sent in by Mrs. Louise Hannah Kohr.

XUM

Honey Marketing as the Grocer Sees It

By G. N. Motts
Assistant Professor in Economics, Michigan State College

One of the current research projects of the Economics Section of the Agricultural Experiment Station at Michigan State College is a study of honey marketing. The work was undertaken at the request of the Michigan Beekeepers' Association and others interested in honey marketing, and from time to time there have been requests for a brief presentation of some of the more interesting findings. The following material is a brief summary and discussion of the data included in questionnaires returned by 230 independent retail grocers in 29 Michigan cities during the past few weeks. The purpose of this article is to indicate the more significant marketing practices used by these grocers in selling honey and to present the recommendations made by a number of the retailers for the improvement of honey marketing from their viewpoint. It may also be of value to honey producers in further acquainting them with the grocers' honey marketing problems and thus promote a fuller understanding of the contribution that each group can make to the success of the other. A more comprehensive analysis of the data will constitute a part of the completed study now in progress.

While all but four of the 230 grocers stocked extracted honey throughout the year, only 102 (57 per cent) of the retailers carried comb honey 12 months of the year. The principal reason is that comb honey is more difficult to handle properly, especially during the warmer months.

The usual sources of supply for grocers are producers, wholesale grocers, and bottlers. Of the 230 grocers, 62 per cent patronized one source exclusively, 35 per cent used two, and 3 per cent bought from three different sources. Of the 142 grocers who used one source only, 57 per cent bought direct from the producers, 37 per cent from wholesale grocers, 5 per cent from bottlers and packers, and 1 per cent from others.

There were 117 who had no special honey sales, displays or advertising, and 113 who featured honey in one way or another. The seasons in which special emphasis was given to honey by the 113 grocers were as follows:

Fall	43 grocers or	38 per cent
Winter	50 grocers or	44 per cent
Spring	8 grocers or	7 per cent
Summer	2 grocers or	2 per cent
Once per mo.	10 grocers or	9 per cent
	113	100

The grocers who give special attention to honey sales stress display of the product in various ways, as shown in the replies by 96 of the 113 merchants tabulated below.

Means of promoting honey sales	No. of grocers using this method
Display	
Counter display	51
Mass display on floor or "island" stands	16
Displayed with bread, biscuit mix, pancake flour, lemons (for colds), and other foods	14
Window display	9
Attractive and prominent shelf display	3
Advertising	
Featured in newspaper advertisements	14
Featured in hand bills	5
Special signs and price cards in store	6
Other Methods	
Special sale prices	12
Clerks' suggestions to customers	2

When special emphasis is not being given to honey, reliance is placed chiefly on counter, shelf, and island displays in the store.

One of the questions asked was the number of different sizes of containers in which extracted honey was sold, and the numbers of grocers selling the various sizes were as follows:

(1) Less than 8-oz. jars	85 grocers
(2) 8 to 16-oz. inclusive	153 grocers
(3) Over 16-oz. jars	68 grocers
(4) 5 pound pails or glass jars	136 grocers

Of the 230 grocers, 78 handled only one of the above classes or size groups of containers, 103 sold units in two classes, 38 stocked containers in three classes, and 11 carried some honey packed in all four classes of packages. There were 198 grocers who estimated the class or group of containers in which they sold the

largest total weight of honey, and the distribution of the data was as indicated here:

Most total honey, by weight, sold in less than 8-oz. jars	19
Most total honey, by weight, sold in 8 to 16-oz. jars	38
Most total honey, by weight, sold in larger than 16-oz. jars	82
Most total honey, by weight, sold in 5-pound containers	58
	198

The importance of containers in the one to five-pound sizes is thus emphasized. Despite the fact that somewhat more jars of honey are sold below the 16-oz. size, as reported above, the pound to five-pound containers account for a much larger total volume of honey in these 230 grocery stores.

A total of 162 suggestions for the improvement of honey marketing from the retailers' viewpoint were offered by 127 of the 230 grocers. The fact that 45 per cent of these retailers had no suggestions to offer probably indicates that a real service to honey producers can be accomplished by someone in stressing to grocers in general some of the effective merchandising techniques listed below. The suggestions have been put into four classifications: the honey itself, grading, containers, and sales methods.

	No. of times suggested
Honey—the product itself	
Handle honey so as to minimize crystallization	12
Development of a market for crystallized honey	1
Grades and grading	
Honey correctly graded and labeled as to grade and color	13
Containers and packing	
Substitute 5-pound glass jar for 5-pound tin pail	8
Use best types of modern design jars	8
Develop a good counter case for display of comb honey	8
More use of cellophane pack for comb honey	5
A 2-pound or 5-pound jar preferable to either a 1-pound or 5-pound size	2
Tighten caps of jars securely and wipe off surface	2
Use a container that can be used later in the home	1
Use squat, flat-topped jars that can be stacked higher	1
Fewer sizes and shapes of jars	1
One-third of a comb in jar, plus balance of extracted, sells well	1
Labeling	
Indicate floral sources on label	5
Use grocer's own brand on honey	1
Use recipe labels	1
More attractive labels	1
Label should tell how to liquefy honey	1
Sales methods	
Need of more advertising by the industry or state	42
More use of counter and mass displays	10
Try to prolong seasonal availability of comb honey	9
Local producers often fail to solicit local grocers	6
Need of better cooperation between producer and grocer	6
Provide grocers with display materials	5
Producers should call frequently to replace crystallized honey	4
Sales increased considerably by reducing the mark-up	4
Try for a more stable honey price level through year	2
Put jars of honey in baskets of assorted items at a fixed price	1
Encourage bakers to use more honey	1
	162

As shown above, the outstanding suggestion was that more honey advertising be done, either by producers, the honey industry in general, the state, or jointly by two or more of these groups. Since proper display is an effective form of advertising in itself, it is not surprising to find that many of the suggestions are designed to make the displays more attractive and hence more effective. While space at this time does not permit a detailed discussion of the suggestions noted above, they may be helpful to producers, bottlers, wholesale grocers, and retailers in further adjusting their honey marketing policies and practices to more fully meet the present trade requirements and consumer preferences.

TWELVE DAY PICKLES

By Mrs. Benj. Nielsen

Select 75 fresh firm cucumbers 2 to 3 inches long. Wash and cut lengthwise. Meanwhile combine 4 quarts of water and 2 cups of coarse-medium salt; bring to boil; cool; pour over cucumbers in crock or enamel container. Weight; cover and let stand 7 days. Drain; cover with boiling water; let stand 24 hours; drain. Cover with boiling water; add 1 teaspoon powdered alum; let stand 24 hours. Drain. Cover with hot sirup: Six cups vinegar, 3¾ cups honey, 1 ounce cassia buds, and 1 ounce celery seeds. Bring to boil. Pour over pickles in crock. For 3 successive days drain off the sirup; bring to boil; pour over pickles. Use a total of 6 cups of honey—original sirup and the additions. On the third morning pack pickles in sterilized jars; add hot sirup; seal. Makes 14 pints.

XUM

Some European Views on European Foulbrood

By Annie D. Betts
Editor of "The Bee World"
Broadbridge Heath, Horsham, England

In 1906 three independent investigators—G. F. White (U. S. A.), R. Burri (Switzerland) and A. Maassen (Germany)—discovered the organism causing American foulbrood, named *Bacillus larvae* by White. It was thus demonstrated that those experienced beekeepers were right, who had suspected that "foulbrood" was not one disease, but two. At that date all still believed that *Bacillus alvei*, described by Cheshire and Cheyne (England) in 1885, was the cause of European foulbrood, and much interest was therefore aroused when, in 1908, White found a small organism which, in 1912, he named *Bacillus pluton*, and considered to be the cause of EFB. *B. pluton* would not grow on any of the media White used, so he was unable to give the usual proof that it was the true cause of the disease (by isolation of the microbe from sick larvae, its culture on artificial media, the infection of healthy brood from the cultures, and finally the re-isolation of the organism from the bodies of the larvae). White based his belief on the fact that he had eliminated all other possible causes of the disease, so that it was extremely probable that *B. pluton* was the true cause.

This position was not very satisfactory, and several authorities—bacteriologists as well as experienced beekeepers—did not consider that it had been proved that EFB was due to *B. pluton*. Many still believed that *B. alvei* was the true cause; while others, particularly in Switzerland, where the sour-smelling form of the disease is common, supported the claims of "*Streptococcus apis*". *S. apis*, as will be seen presently, has been a source of much confusion. Not only does it resemble *B. pluton* closely, so that many microscopists—not only amateurs, but experienced research men also—have mistaken the one for the other, but it now turns out to be not one species, but two—and they are not primarily bee-disease organisms at all!

Matters continued thus for some years, the general opinion being that *B. pluton* was probably the cause of EFB, but that the conditions in which the colony found itself decided whether the disease broke out or not. It was held that strong colonies, properly managed and with good stores, either would not take EFB, or would throw it off unaided if they did become infected.

In 1928, Lochhead found that *B. alvei* could give rise to forms resembling *B. pluton;* and gradually investigators adopted the view that EFB was due to a microbe which could take on very varied forms (a pleomorphic organism) and that *B. pluton*, *B. alvei*, and possibly others of the "secondary invaders" were merely different forms of this one organism. This view, I believe, was first set forth in its entirety by Burnside in 1934.

In the same year Borchert (Maassen's successor in charge of bee disease work in Prussia) put forward the view that all manner of bacteria can cause EFB, which is therefore not so much a single disease as a group of diseases. It is possible that the strain of bees with which Borchert was working was more susceptible to such infections, and that this explains the failure of others who have tried to repeat his results.

It was in 1934, too, that Tarr began work at Rothamsted Experimental Station (in Hertfordshire, England) on the brood diseases. At first he found some evidence for Borchert's results—but, as will be seen, changed his mind later on. He regarded the notion of a pleomorphic organism, put forward by Lochhead and Burnside, with caution. In the course of his later work, he came to the conclusion that *B. alvei* occurs in various forms, and that *B. para-alvei* is one of these, and not a separate species. Morgenthaler (Switzerland), who had been working for a long time on bee diseases, also found that there were several forms of *B. alvei*.

Tarr received many samples of diseased brood which were believed to be EFB by those sending them in, but resembled none of the known diseases except the condition noticed by Anderson in Scotland, and called

by him addled brood. Finally Tarr showed that addled brood is in fact a separate disease, and is due to a defect of the queen, causing her brood (in some cases pupae nearly ready to emerge) to fail to complete their development. It is of course not infectious, and the cure is to requeen.

By the end of 1936, however, Tarr came round to the view that White had been right after all. The cause of EFB is an organism identical with White's *B. pluton*. Morgenthaler also declared himself converted to this view, which is now accepted by practically all competent persons in Britain and Switzerland, though not yet (as far as information goes) in Germany, where Borchert's view still remains the official one. Tarr showed, also in 1936, that *"Streptococcus apis"* was in reality no true species, but was the name given hitherto in bee literature to two well-known species of lactic acid streptococci, *S. liquefaciens* and *S. glycerinaceus*. It is probable that bees collect these when they fetch water from places contaminated by cattle droppings. No doubt "sour brood" is so prevalent in Switzerland because that country has a large cattle population, and these streptococci therefore tend to be nearly always present as secondary invaders in cases of EFB in that country. Tarr made it clear that *"S. apis"* has often been confused with *B. pluton*, and that this has been responsible for much of the doubt and confusion as to the real cause of EFB. The lactic acid streptococci can, of course, easily be cultivated on artificial media. *B. pluton*, on the other hand, has hitherto resisted all attempts to cultivate it outside the stomach of the bee larva, although Tarr tried many of the most delicate and promising of modern methods in his attempts to do so. From his experiments in infecting larvae, Tarr also concluded that it is highly probable that larvae can only be infected when they are quite young.

It is thus plain that, though workers in Britain and Switzerland had returned to the view held in America in 1912, they had (up to the end of 1937) made only small advances on it. We now knew that *B. alvei* varied, that *S. apis* was only a pair of secondary invaders, and that many reputed cases of EFB were in reality addled brood and non-infectious; but we were as ignorant as ever of the manner in which EFB is propagated in the hive and spread about the country. Then in the spring of 1938 a great—almost a spectacular advance was made. Miss Gertrud Baumgartner, one of Morgenthaler's assistants at the Swiss Bee Research Institute at Liebefeld, published an account of the course of infection in the hive. She was able to show that larvae attacked by EFB do not all die. **Some of them recover**—probably those which were not quite young when they were infected—and emerge in due course as adult bees. Such larvae, when they have completed their larval life and are sealed, attempt to spin the usual cocoon. Infection with *B. pluton*, however, makes this impossible—partly, as Tarr showed (also in 1938), because their silk glands are often full of the organism, and produce smears of *B. pluton* instead of silk. When such a bee comes to emerge, she has to bite through a capping heavily smeared inside with *B. pluton*, and therefore starts life with her tongue and jaws infected. These bees, which have had EFB as larvae and recovered, are very probably the means whereby the disease is spread in the hive. At 2 days old they will clean out cells just vacated by newly-emerged bees, and at 6-10 days old they will be feeding young brood. Thus, even if their mouth-parts are only dangerous for a week, they will have plenty of opportunities for placing infection where it will at once come into contact with hatching larvae. It is also known that, in attempts to infect a colony artificially, there is often a lag of three weeks before EFB is seen. This would naturally result if the first batch of infection "took" on older larvae only. These would all or nearly all recover, but would emerge as "carrier" bees and cause a visible outbreak of the disease among the larvae resulting from eggs laid during their first week of adult life.

In consequence of the above findings, we in Britain are inclined to agree with the Swiss experts. **Combs from EFB colonies are not safe,** especially if there be in them even a small amount of dead sealed brood; and the bees also must be regarded as carriers of infection. It is not yet known how long a carrier bee continues to be a danger to her younger sisters; and it is therefore wiser to assume that this is for life, or at least so long as will make it impossible to "disinfect" her by keeping

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the bees of her colony in confinement as an artificial swarm, without combs, until the youngest of them is old enough to be "safe". We cannot, therefore, save the bees of any but a very mild case of EFB without serious risk of a recurrence of the disease. The Swiss now recommend the destruction of bees and brood combs, melting down super combs and disinfecting the hive, etc., as in AFB.

As regards preventive treatment, there is better agreement between Europe and America. But even there we differ to some extent. We find that the disease may break out in well-cared-for apiaries, and may attack strong colonies. "Good beekeeping" will help to keep EFB at bay, but will not prevent its occurrence if it enters a district. On the other hand, lack of warmth or of good stores (including pollen), and lack of peace and quiet (as when an unwise beekeeper examines a "doubtful" colony needlessly and by so doing turns the scale against it and enables *B. pluton* to get a hold) are undoubtedly predisposing conditions.

How is EFB spread outside the hive? In the apiary, doubtless by drifting of carrier bees. If this be so, it proves that these bees remain infectious up to at least 5 or 6 days old, and probably for over a week. Drifting will not, however, explain the rapid spread of EFB about a district. If carriers are infectious all their lives, it is possible that they might carry *B. pluton* to flowers they visit, and thus bring about the infection of colonies several miles distant. The worse the forage conditions at the time, the further bees fly in their search for food, and therefore (if other things be equal) the further this method might be expected to spread the disease. It would be interesting to know whether beekeepers have noticed EFB to spread more miles a year in bad seasons than in good ones. That it is more prevalent in an affected district in seasons with bad springs is already a frequent observation; but I do not remember seeing any statement regarding the speed and distance of its travel in good and bad years.

In conclusion, may I appeal to beekeepers in America to keep their eyes open for possible evidence for or against the view that the bees of an EFB colony carry the infection. I have great confidence in the soundness of the work of Tarr and Morgenthaler, and there seems to be no room for doubt that some larvae do recover, and emerge as possible carriers of infection. The proof that, for example, foraging bees can infect flowers is a matter for research workers (and a difficult task even for them); but any beekeeper, by keeping careful notes and always examining other possible explanations of what he may see, may at any time add valuable facts to our knowledge of this elusive disease.

Not all mammoth apiaries are located in the West. The La Bombard Apiary located in the village of Vergennes, Vermont, counts 285 colonies run for comb honey. They are housed in old-style Canadian "dog houses" for winter protection. Photo by Chas. Mraz.

It's Canning Time

By Mrs. Benj. Nielsen

Honey canned fruits are a taste treat and real health insurance.

Once again the canning season is advancing upon us. As the hot days bring an almost endless variety of fruits and vegetables to the peak of perfection, busy homemakers begin to wonder if there will be enough days left in which to "imprison in glass" some of each of these bountiful offerings. There's a deep satisfaction in using honey in this branch of the homemaking game. Its ability to enhance flavor and its reliable preserving power combine to produce a justifiable pride as the homemaker views well-stocked shelves of filled jars. This feeling of satisfaction and pride more than compensate for the work involved.

Last year we emphasized the canning of fruits. So let's pass lightly over this part of the canning business and explore a field about which little has been said, but nevertheless, one which holds rich possibilities in increasing the consumption of honey. Have you guessed it? Yes, it's pickles and relishes.

In passing let's hope that you are planning on canning lots of fruit in honey sirup. It enhances the flavor of bland fruits, such as peaches and pears, and really does things for tart fruits, particularly plums and Italian prunes. As we have pointed out before, in arriving at pleasing proportions for the sirup, it is a good idea to remember that, cup for cup, honey is sweeter than the ordinary granulated sugar generally used in canning, and that the honey flavor is intensified with time. The amount of honey used will vary, of course, with the kind of fruit to be canned; more honey may be used satisfactorily with the tart fruits. And because honey has a tendency to foam when heated, you'll save time and regrets if you use a large pan in preparing the sirup. Combine honey and water, bring to a boil and skim, if necessary. From then on proceed as you do with your favorite canning method.

Doesn't that Molded Grape Salad look good enough to eat? And if you could pick up the fork and cut down through the luscious grapes and the camouflaging creamed cheese coating, you'd find a delightfully flavored honey canned pear. It's to be served thoroughly chilled, of course—the kind you can prepare ahead of time and it suffers not a whit in the waiting. This is only one of the many delightful ways you can use honey canned pears. More about that another time.

Before we bring out the pickling kettle let's consider the main points of good pickle practice—the things that make the difference between handsome, crisp tender pickles and those which have the appearance of garden left-overs. Fresh bright fruits or vegetables, fresh spices, clear high-quality vinegar and coarse-medium salt (not iodized) are prime requisites in this business of good pickle making. Then proper curing and short cooking periods contrive to make pickles doubly delicious.

Twenty-four hours (even less) from vine to brine is smart pickle practice. Select good firm cucumbers; imperfect ones, or those held too long may be hollow. Spices that have rested on the shelves since last pickling season may have lost their spicy persuasiveness. It's a good idea to make a clean sweep and invest in a new supply. Strong or inferior vinegars are one of the worst soft-pickle culprits. If you have good honey vinegar, use it by all means. If not, us a high-grade cider vinegar. The flaky crystals of coarse-medium salt dissolve quickly, making a clear brine free of scum.

Why do pickles sometimes pucker? Well, the object in pickle making is to exchange some of the natural juice in a fruit or vegetable for some of the rich, tangy pickling sirup and it's most important to make the exchange gradually and evenly. When more juice is drawn out than is put back in, or extracted more quickly

This luscious molded grape salad is only one of the many ways to serve delightfully flavored honey canned pears.

than the sirup can be absorbed, you'll wind up with a puckered product. They'll pucker too, if added too suddenly to sirup that's too sweet. Short-cut "hurried up" pickles may be firm and tender but are never as crisp as those produced by the old salt-stock method. And, if the recipe reads, "Soak in brine for 7 days", or "Drain off sirup and reheat for 3 successive mornings"—there's a reason. Beware of short-cuts!

If your pickles sometimes soften during a long brining process it may be due to a brine that was too weak, or because the cucumbers were not weighted down beneath the surface of the brine, or because the surface was not kept clear of scum. One-half cup coarse-medium salt to each quart of water is standard brine solution. Add the salt to boiling water and allow to cool to room temperature before pouring over the cucumbers. If very small, gherkin-sized cucumbers are called for add only three-fourths of the specified amount of salt to the original brine; weight cucumbers down and add remaining salt to the top; it will be gradually absorbed into the brine as the cucumber juices weaken the solution.

This year if you would like to substitute honey for sugar, in making some of your favorite pickles here's a hint or two which may prove helpful. Cup for cup, honey, as you know, is sweeter than the granulated sugar commonly called for in pickle recipes. As a rule, two-thirds to three-fourths cup of honey gives pleasing results when substituted for granulated sugar, Should your recipe call for brown sugar it is well to remember that while brown sugar lends a distinctive flavor to foods it is not as sweet as granulated sugar or honey.

I'm offering these tried and true recipes with the hope that you will enjoy them as much at your house as we have at our house.

Beet Relish

One cup vinegar, 1 cup water, 1 quart beets, cooked and cut fine, 1 quart uncooked finely chopped cabbage, ½ cup grated horseradish, 1½ cups honey, 1 tablespoon salt, 1 teaspoon pepper, 1 teaspoon mustard seed, and 1 teaspoon celery seed.

Heat the vinegar and water to boiling. Pour over remaining ingredients. Seal in hot sterilized jars. Makes 4 pints.

Honey Spiced Cherries

Select the largest, most deeply colored cherries you can find. Pick in bunches of twos and threes, leaving a leaf on now and then, if possible. Wash and pack in sterilized pint jars, being careful not to mash. To each jar add 2 teaspoons honey, 1½ teaspoons salt, ¼ teaspoon celery seed, and ¼ teaspoon white mustard seed. Then fill jars with half cider vinegar and half water boiled together for three minutes. Seal and store in a dark place for six weeks before serving.

Honey Pickled Peaches

Wash, but do not peel, a box of full-ripe peaches. Firm, flavorful Colorado Elbertas, with their rosy blush and deep yellow meat are ideal for this purpose. Use a soft brush to remove the fuzz. Drop, a few at a time, into boiling salted water and let water boil up over the fruit for 2 minutes. Remove peaches carefully. Dot each peach with 2 or 3 cloves. Plan your work so the hot spicy honey sirup will be ready at this point. For it you will combine: 6 cups of honey, 1 quart of honey or cider vinegar, and 2 cups of water. Drop in a spice bag (cheesecloth or thin muslin will do) containing 2 tablespoons of broken stick cinnamon and 1 tablespoon of whole allspice. Boil for 3 minutes. Pour over clove-studded peaches, weight down fruit so it is completely covered and let stand over night. Do leave the spice bag, too! In the morning drain off sirup, heat to a boil and boil gently for 10 minutes. Add peaches carefully and simmer—not boil—for about 15 minutes, or until tender. Pack in sterilized jars. You'll be proud to serve these rosily-blushing peach pickles!

Bread and Butter Pickles

Twelve medium-sized cucumbers, 5 medium-sized onions, ¼ cup salt, ½ pint vinegar, ¼ pint water, ¾ cup honey, 1 teaspoon mustard seed, 1 teaspoon celery seed and ¼ teaspoon tumeric.

Slice cucumbers and onions thinly; arrange in layers, sprinkling salt over each layer. Let stand 3 hours; drain. Combine remaining ingredients; bring to boiling. Add cucumbers and onions. Cook 5 minutes. Pack into hot, sterilized jars. Seal. Makes 4 pints.

Chunk Pickles

Select fresh firm cucumbers, not over 1½ inches in diameter. Wash and cut into ¾-inch slices. Bring to boiling 4 quarts of water and 2 cups coarse-medium salt; cool. Pour over cucumbers. Weight down so all slices are covered completely with brine. Let stand 3 days. Drain. Let stand in fresh water (weighted down) for three days. Drain. Then stew (a low simmer) for 2 hours in weak vinegar to which has been added a lump of alum the size of a walnut. Drain. Cover with hot sirup: To 7 pounds of pickles use 6 cups honey or cider vinegar, 4½ cups honey, 1 ounce whole allspice, 1 ounce broken cinnamon sticks, and 1 ounce celery seed. Boil together for 3 minutes.

It is not necessary to seal these in jars. They will keep perfectly in a crock covered with a plate to keep out the dust. Upon standing they become a rich, deep translucent green—as nearly like commercial sweet pickles as possible.

Pickled Onions

Four quarts small white onions, 2 tablespoons broken stick cinnamon, 3 tablespoons whole cloves, 3 cups honey, 1 teaspoon red pepper (optional), 1 tablespoon grated horseradish, and 2 quarts best quality cider or honey vinegar.

Select pickling onions of even size. Peel. Cover with a brine made by dissolving 4 tablespoons salt in 1 quart water. Allow to stand 24 hours. Drain. Pack onions in sterilized jars. Combine remaining ingredients, heat to boiling and pour over onions. Seal. Pimentoes cut into thin strips or fancy shapes add a pleasing dash of color.

If your onions occasionally come from the pickling solution looking cloudy and gray it is quite possible that inferior vinegar is the culprit. Many good cooks prefer white vinegar for white pickle mixtures, but a high-grade cider vinegar never grays—only gives a rich, amber cast. Ground spices will darken onions also. Use whole ones and tie in a bag if desired.

Cucumber Relish

One quart small onions, 2 red peppers, 6 large cucumbers, 1 tablespoon salt, ¾ cup honey, 1 pint vinegar, 1 teaspoon white mustard seed, and ½ teaspoon tumeric.

Peel onions. Remove seeds from peppers. Slice cucumbers, onions and red peppers thinly. Sprinkle with the salt and let stand 1 hour. Drain. Add honey, vinegar, mustard seed and tumeric. Cook slowly until tender. Pour into sterilized jars. Seal. Makes 3 pints.

Mustard Pickles

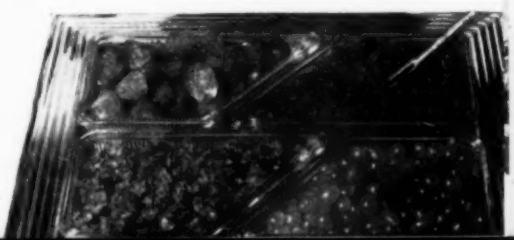
One head cauliflower, 3 green peppers, 1 quart small green tomatoes, 2 cups green lima beans, 1 quart pickling onions, 24 2-inch cucumbers, ¾ cup honey, ½ cup dry mustard, 2 teaspoons tumeric, ¾ cup flour, 7 cups cider vinegar, and 7 cups water.

Break cauliflower in flowerettes; cut peppers in strips; cut tomatoes in wedges; peel onions. Combine with lima beans and cucumbers. Cover with brine made by adding 1 cup coarse-medium salt to each gallon water. Let stand 10 minutes. Drain. Combine remaining ingredients and cook until thick. Add vegetables. Cook only until tender—avoid overcooking. Seal at once.

Pepper Relish

Six large green peppers, 6 large red peppers, 6 large onions, ¾ cup honey, 2 tablespoons salt, 1½ cups vingar, and 1 teaspoon celery seed.

Remove seeds from peppers; peel onions. Put peppers and onions through the food chopper using medium knife. Cover with boiling water and let stand 5 minutes. Drain. Add the honey, salt, vinegar and celery seed. Bring to the boiling point and let boil gently for 20 minutes. Pour into sterilized jars. Seal.



Luscious chunk pickles, beet relish, cucumber relish, and pickled onions.

r. J. E. Eckert, Associate Apiculturist, Agricul-ıral Experiment Station, College of Agriculture, University of California.

Scientific Beekeeping and Extension Work at Davis, California

By E. R. Root

As our readers know, one of the U. S. Bee Culture Laboratories is located in the University of California, at Davis, in charge of Dr. Frank E. Todd, a full account of which was given in the January issue, page 14 of this year. Now we will confine ourselves to the scientific work in beekeeping under state worker, Dr. J. E. Eckert, at the University of California.

A graduate of Ohio State University, Dr. Eckert specialized in general bee culture under Dr. Jas. S. Hines. He then took a special course in teaching scientific bee culture at the University of North Carolina, at Raleigh. Later he received his degree at Ohio State University, and during that time he was in the employ of the United States Bee Culture Laboratory, at Laramie, Wyoming, under Dr. A. P. Sturdevant. Here, from 1927 to 1930 he studied the flight range of honeybees and how they distribute themselves in relation to available sources of nectar, when their apiary is located within a nectar-producing region. (See last edition of the A B C and X Y Z of Bee Culture, page 299, 1940 edition.)

Later on Dr. Eckert took up special scientific bee and extension work at the University of California, where he is now located. Besides teaching, and extension and research work in beekeeping for the University, he is also Chairman of the Division of Entomology and Parasitology in the Agricultural College, at Davis. His extension activities are confined almost entirely to the county and regional organizations of beekeepers in the state, and these organizations draw heavily on what time he has available. His meetings are necessarily sandwiched in between his classes and research work, involving considerable night travel because of the size of the state. He has several research projects underway. He has accumulated a fairly large collection of the pollens of the more important plants visited by the honeybee in California, and hopes some day to complete their description.

He is especially interested in queen-rearing and package-bee problems and devotes not a little of his time to research in these fields. Supersedure of queens has also been one of his special studies. He has demonstrated the ill effects of low temperatures on queens.

His honey investigations over the past few years have resulted in the publication of a circular entitled, "The Physical and Chemical Properties of California Honeys", by J. E. Eckert and H. W. Allinger.

We have looked this over and it is one of the most complete of any work done in California. Another Bulletin, No. 517, by Vansell and Eckert is just out.

Dr. Eckert and Mr. Vansell, of the U. S. Bee Culture Laboratory at Davis, have been collaborating during which time they have revised the bulletin "Nectar and Pollen Plants of California".

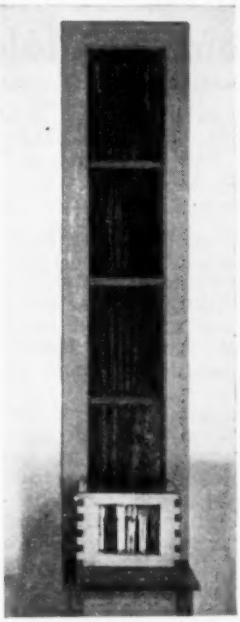
The University of California maintains about 75 colonies and 150 nuclei for student and experimental purposes, the buildings of which are shown in the accompanying photograph.

In the wall hive, the 8-frame body on the table is the "super". The bees have access to it through a tunnel and this year not only filled the combs in the wall but also stored six (inside) combs in the super with honey.

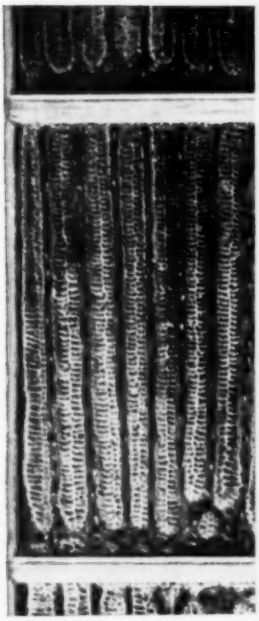
The other print is a close-up of the combs in the wall. As will be noted the brood nest above the super consists of four sections of combs of a depth or width of four inches between the walls of the building and of a length between the dividing walls up and down.

It is interesting to note that the whole arrangement according to ordinary practice is upside down but the bees seem to accept it in spite of their habit to store surplus above.

The direct state work by Dr. Eckert and the work of Dr. Todd and Mr. Vansell of the Bee Culture Laboratory, all at Davis, California, place before the beekeepers of that state a large amount of valuable information that is particularly applicable to the Pacific Coast region, for California covers two-thirds of it.



Dr. Eckert's wall hive in the laboratory at the University.



Close-up of the wall hiv in the laboratory.

elow: Portion of the University of California apiary with ney house on the right and main laboratory on the left.

ight: Dr. J. E. Eckert in a corner of the apiary at the University of California.

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From the Field of Experience

A DEATHLESS METHOD OF REMOVING SWARMS FROM BUILDINGS OR BEE TREES

By Emory Ward

Much to the disgust of everybody concerned, a swarm of bees will frequently establish their abode within the walls of a building, and the owner of the structure must find some way to eliminate the busy insects from their unwelcome presence on his premises.

If the unfortunate owner of the bee-infested building wishes to save the bees and transfer them to the regulation brood chamber hive, then it is necessary that he start the process before the beginning of the main honey flow so that he may assure himself sufficient time to complete the job.

Equipment necessary to roust the bees from their unwanted residence will include sufficient lumber and scaffolding to build a platform at an even level with the bees' entrance to the building; a regular Porter bee-escape; and a small quantity of mortar or cement to patch up the bee hole.

A standard ten-frame hive body will be needed complete with a nucleus of a queen and two or three frames of brood, along with the remaining frames, which should be filled with drawn combs or full sheets of brood foundation.

The individual whose premises have been invaded by the honey-gatherers must start his process of extermination by erecting a scaffold to the entrance of the bees' forbidden paradise. On top of the scaffold and even with the entranceway to the bee hole, a standard hive body is placed. A bee-escape arranged so that the bees can leave but cannot return is built into the entrance to their Garden of Eden, and the remaining openings are filled with cement or mortar.

At the top of the scaffold and perpendicular to the entrance of the building, the new brood chamber hive complete with all its interior equipment is arranged, and the process of extermination is under way.

The bees, seeking to maintain their synonymity with the term "busy", leave the homeland and start ambitiously on their day's labor of nectar gathering. But on their return, the front door is locked and barred, and although their sisters from within can easily leave the domicile, the bee-escape makes return impossible.

The new brood chamber on the scaffold solves their housing problem, however, and they immediately transport their cargo into the newer residence. By the end of the honey flow, all of the field bees, along with any newly-hatched young brood from the nest, will have re-located themselves in the more desirable brood chamber, and the number of bees within the prohibited home will be limited to a very few.

When the newly-made colony in the brood chamber has reached maturity, the bee-escape to the old residence can be removed, and the remaining bees still living in the memories of contentment in a forbidden paradise, may be killed by applying sulphur fumes.

If it is certain that the combs in the illegal nest are free of all possible disease, the bees in the new brood chamber may be allowed to "rob out" the old nest and transfer the stolen honey to the new location. Additional supers should naturally be placed on the hive to care for this added production.

If there is any reason to expect disease in any of the old combs, however, it is imperative that the beekeeper close the hole immediately in order that the robbing bees may not spread disease throughout the beekeeper's own as well as neighboring apiaries. If robbing is permitted, the entire hole should be closed when the old nest is empty so that other swarms may not be enticed into entering the illegal residence.

In constructing the scaffolding to hold the brood chamber, the builder must remember that it must be strong enough to hold two or three hundred pounds.

After the old nest has been robbed out and securely sealed against any further invasions, the colony on the scaffold may be removed to its permanent location in the apiary ready for honey-gathering in the regularly established manner.

ANOTHER OFFENDER?

By C. M. McAuliffe

Not that I want to seem too sure of the fact, but among the few observations I made among my bees the past summer was this: One morning early in August I noticed a little robin casually hopping around one of my hives, which by the way happened to be shaded by a massive mulberry bush. At first I paid no attention, thinking perhaps that it was gathering the berries on the ground, and at the time probably was, but as it hopped about it picked up an occasional dead bee. It liked the taste of these, so my imagination tells me, and as a result returned daily to replenish such a treat. However, dead bees were rather scarce around the hive in the "busy season", but was this to stop Mr. Robin? It was not! This unscrupulous fellow thought he might try the live ones as they went from and returned to the hive. On finding these an even better treat he concentrated all his efforts to the obtaining of them, not a very difficult task he discovered if he but perch on the edge of the hive cover directly over the entrance.

Ready for his dinner.

This may not seem very probable to you, but we must face the facts, and these I have already presented. I could not tell whether this robin was the same one that returned every day, however, I can say that in almost every incident the robin was seen to be perched on the hive under the mulberry bush.

There is nothing more charming to have around the home in summer than a good sized flock of birds such as these, also the few bees that one robin might take can not even be considered as the proverbial "drop in the bucket". The sole purpose of this little article is to find out if any other of you beekeepers have had any similar experiences. Have you?

Bernardsville, New Jersey.

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THE BEES' WATERING TROUGH

By Bessie L. Putnam

We all know that the higher animals must have water in order to thrive or even to exist. How many realize that it is just as necessary even to bees? It would seem that the honeybee should be able to get all the necessary moisture from the nectar which it is continually gathering. Evidently the bee does not think so. Note the watering trough which is near an apiary and you will find bees constantly around it during the day, a menace to stock, and some eventually drowning. We have seen them clustered inside the upper part of the pitcher pump to get the loved moisture, a place equally fatal to them when the pump is used. And note, too, that if all sources of pure water are shut off, they will congregate around the vilest cesspool—anything to get the moisture.

You may not find a drinking fountain for bees listed in the catalog of any supply house. You can easily make a very inexpensive one which is quite effective. All that is needed is a small basin with a piece of cheesecloth or some other light material thrown loosely over the surface after the dish is filled with water. The bees will greedily get it from the meshes of cloth as it becomes saturated with water. They can drink their fill with no danger of getting drowned. If the cloth inclines to sink, a small piece of shingle will keep it near the surface. Put it in a shady place and you will be surprised at how soon the bees will find it.

You will also be surprised at how often it will need replenishing. Incidentally, you may get a more pleasing surprise, as we did during a season of drouth, at the increased honey yield to which this unfailing source of supply of pure water was, we believe, in part responsible.

Conneaut Lake, Pa.

MAKING CROSS BEES GENTLE

By A. M. Bragg

A few years ago I was called by my father to care for his six colonies of bees. They were black and very cross. Being located in a pasture, cows kept the grass down and I suspect bumped the hives with their horns to the discomfort of the bees for I saw them sting the cows when they were fifteen or twenty feet from the hives. I suggested a wire fence thirty feet away. It did not appear to improve matters. At about the end of the main honey flow they were extremely cross, and finding me poorly protected a hundred or more used their utmost defense.

I decided to be rid of cross bees and in haste queen traps were applied to all hives and every frame shaken clear of bees on the alighting-boards, after which I returned to each hive, found the queens around the trap and destroyed them. Four days later new Italian queens were introduced. This method of shaking to get the queen quickly may not be suitable but it did work in this case and seemed to subdue the bees as they were concerned about getting the honey which was shaken from the uncapped cells; also black queens are difficult to find in the hive.

I did not return to them for about six weeks, and was gratified to find them practically all Italian bees, as gentle as one could wish for. Skunks were very plentiful and lived under the hive stands, but I suppose they lived on dead bees, not live ones.

Walpole, N. H.

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JUST A DAY'S WORK

By John G. Jessup

May passed with a total rainfall of only one-half inch but the first week in June brought a succession of heavy showers. As we drove to the bee yard this morning, June 7, the yellow of the sweet clover fields stood out in sharp contrast to the green beside them. A week ago the bees were just beginning to get a little nectar from sweet clover. Until now swarming has not been a problem. Last week few colonies had shown any inclination to swarm when provided with one or two hive bodies of drawn combs to give them ample room in which to work and loaf. The advantage of drawn combs to keep bees content was clearly illustrated. Where foundation was used, many colonies started queen cells and much work had to be done to prevent swarming.

Not a bee was flying as we drove into the yard. Though the sun was shining the air was chilly after the rains. Prospects for working bees were not of the best but the smokers were soon started. Two tablespoons of cylinder oil drainings were poured on the burlap after the smokers were lighted. This oil is not essential but improves the burning and makes it last longer.

The first hive opened was a three-story. As the cover came off the combs showed new white edges where they had been drawn out to receive the new honey. The super had 25 or 30 pounds of honey in it and just two weeks ago all colonies were down to the minimum of stores. We feared then that it would be necessary to feed them to keep the queen laying. Such is the miracle of the honey flow! One day they are at the door of starvation and the next the flow is pouring forth and the bees begin the task of bringing in the crop.

Many colonies had honey in every available cell. Very little was sealed but all needed more room and our load of 70 supers was used before the yard was done. Due to rain and lack of storage space many colonies were making preparation to swarm although none had done so. A number with sealed queen cells would be ready to leave in a day or two. We made shook swarms of these as they would undoubtedly be gone before another visit to the yard. All bees and the queen were shaken into a hive of foundation. That should make them feel as if they had swarmed. The brood and supers were placed on colonies that could best use them.

All our supers of drawn comb will be on this week if the weather permits. Fortunately school is out and Jack is working every day wiring frames and putting in foundation. If this rapid early flow continues more supers will be required than in normal seasons. Just how many to provide is always a problem. With favorable weather, some honey will be sealed and ready for the extractor by the time this reaches the reader. In thirty days half the crop will be gathered and in sixty days our heavy flow will be about over.

CAN WE PRODUCE MORE HONEY?

From The Scottish Beekeeper, April 1941

Sir,—I notice that you are asking for readers' opinions on producing more honey. I sold too many bees last spring, and therefore only ran 900 colonies for honey production; my crop was just over 40 tons, an average of 100 lbs. In my experience, the essentials for successful beekeeping are:—

(1) Always keep good queens; replace every poor queen at once, whether she is young or old, and never keep a queen after her second year, except as a breeder.

(2) Breed from your best honey-producing colonies, **not** from any stocks which happen to have a cell ready when you want one.

(3) Make sure that each colony has ample food all through the year. If necessary, feed even in June; if no sugar is available, keep back combs of good honey, but never let your bees go short at any period.

(4) Check swarming to the utmost extent, and always keep your stocks strong; if necessary, double them up at the beginning of the flow rather than run weak stocks for honey.

There is nothing new in any of the above; but if practised faithfully, it is a plan which will produce good crops in every season, when the weather permits.—Yours, etc.,

A. W. GALE,

Marlborough.

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FRANK BENTON AN EARLY ADVOCATE OF WINTER POLLEN

By Axel Holst

I have read the article on pollen in the 1940 edition of A B C and X Y Z of Bee Culture, and have particularly noted your remarks under the chapter heading, "The New Orthodoxy of Ample Pollen Reserves".

So far as I can see, the new standpoint is exactly the standpoint taken by Frank Benton, who, in his manual, "The Honey Bee" (United States Department of Agriculture, Division of Entomology, 1896) page 107, after having disputed the correctness of those "who assert that it is unfit winter food and produces dysentery" has the following to say:

"But good colonies should begin brood rearing in January or February, and pollen or a suitable substitute for it containing nitrogen must then be present, or the nurse bees will be subjected to a fearful drain on their vitality to supply the rich-nitrogenous secretion required by the developing larvae; in fact, they can not do so long, and the colony dwindles.

"This absurd theory that bees can not have access to pollen in winter without detrimental results can best be answered by referring to the well-known fact that a colony in a large box or straw hive, freely ventilated, yet having some part of the hive protected from drafts of air and kept dry, will almost invariably come out strong in the spring if populous in the fall, heavy wih honey, and having a young and vigorous queen.

"The pollen, it could not possibly be claimed, had been injurious to such colonies, although they always gather and store it without restriction, and are not disturbed in the possession of it. In truth, their stores of pollen have constituted an important factor in their development, and the strong instinct which they have toward making accumulation of pollen for winter use and which they have exercised for thousands of years undisturbed, is of great benefit to them."

The "new orthodoxy" therefore seems to be of rather old date.

[As you may know, there was quite a controversy fifty years ago concerning pollen, especially its suitability for winter stores in colonies of bees in northern latitudes. Some claimed that it was detrimental to good wintering, and many beekeepers made an attempt to remove combs containing pollen in the fall of the year. Later work shows that pollen is not detrimental to good wintering of bees. It is obvious that Mr. Frank Benton was ahead of his time because, as you say, what he says is exactly in line with the so-called new orthodoxy now being advocated. After all, the old saying, "There is nothing new under the sun", still holds.—Editor.]

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KICKING A HIVE TO MAKE BEES WORK

By M. J. Deyell

Some years ago while producing honey commercially in Northern Michigan it so happened that my best colony and my poorest colony, from the standpoint of honey production, stood side by side in the home apiary. The poorest colony stored only a part of a deep super that season while the best one had almost five full supers.

The two colonies appeared to be equal in strength when the main flow started. I got so disgusted with the worthless colony that I used to give the hive a swift kick occasionally as I passed by, in an attempt to put some life into the bees, but they didn't have gumption enough to sting. The best colony was of a different temperament. The bees were somewhat peppery and wouldn't stand for rough treatment.

It doesn't pay to tolerate a worthless colony when the introduction of a good queen from a known honey gathering strain, to replace the poor queen, will change a poor colony into a good one.

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SECOND GLANCES

C. M. Isaacson

Mr. Conner gives us quite a thorough discussion of various paints that may be used on beehives. The combination of red barn paint and aluminum that he recommends should be both economical and long wearing. That the red paint resists wear well on hives I have found true—a year or two back, I gave quite a number of supers a single coat of this (being temporarily out of the white). I can notice now that this single coat seems to wear as well as two of the regular paint. I will probably give them a second coat of aluminum as Mr. Conner suggests (pages 421-422).

That the first instructor in beekeeping was not a financial success, is evident by Dr. Phillips' article (page 423). That he had many happy moments in spite of this can only be supposed, but bees do have a way of giving returns in pleasure if not in money. In his hive making and telling others of his knowledge of the wonderful little insects, he must have had many an hour of pleasure.

The picture and description of the 200 lb. swarm "staggers the imagination" (page 424). It is interesting to speculate on what would have been the result if they could have been induced to all work as one enormous colony.

The data on honey flows and production in central Maine goes to show that many a region thought unsuitable for beekeeping merely needs development of methods suited to the locality to produce profitable crops. While there are not always three separate periods of flow as described in the article (page 425), there are often many more sources of nectar than supposed.

The diagrams and plans given on pages 426 to 428 should be of real value to anyone planning to build a modern honey house. They are another example of how our agricultural colleges and stations are performing the often expensive (through mistakes) work of experimentation for the beekeeper, giving him results tested through experience instead of theory.

Mrs. Neilsen is right, beekeepers are very lucky in having all they need of such a real food as honey (page 429), even if we are not allowed to tell others of its health qualities (see editorial on page 442). WE know it is a real "health food", even if the government does forbid us to mention it on the package. Oral boosting still seems to be O.K., so lets eat honey and talk honey!

Mr. Root's description of "chicken as Nature intended" sounds enticing, but I wonder if "honey in the rough" would be as popular. I am rather afraid that it would be a bit too sticky, although of course the pail of warm water he mentions would clear things up somewhat.

Mr. Smukler's short piece on finding queens (page 435) and H. J. Rahmlow's on marking them supplement each other well. The advice in the first one to be careful in the amount of smoke used is sound, as anyone who has had occasion to find many queens knows. I intend to try out acetone for painting the queens, immediately; it will be of especial help when working with the Caucasian part of my apiary. That this material does not cause supersedure should make it nearly ideal.

That a colony given a sealed queen cell for requeening may often swarm upon emergence of the young queen is a warning of value (page 438); and that good queens cannot be reared under adverse weather conditions is certainly true. The weather should be warm, especially at the time of the mating flight.

The editorial on page 442 gives one some idea of the enormous work that bees have to do in gathering and reducing the nectar before it can be called honey. With that in mind, and remembering how strong in bees many colonies are this year, it is easy to see the wisdom of the two-supers-at-a-time advice.

Another admonition that is worthy of attention is found on the next page; keep experimentation on a reasonable scale, and don't go "overboard" on any new, even though seemingly good, idea. It may not work in every locality.

In his Talks to Beekeepers (page 459), Editor Deyell mentions a curious fact that many of us have seen—that a colony with next to no honey will sometimes be crammed with brood; and what is more, remain that way. It does seem as though they have some way of telling that a honeyflow is in the offing.

Giving a copy of the Institute's new recipe book with a sale of two containers of honey sounds like a plan worth trying. It is very attractive and well put up.

Spinster

Jane Says;

What queer creatures men are! They "Strain at a gnat, and swallow a camel", so the Scriptures say, and though ready to fearlessly face enemy guns and air attacks, they will run from a tiny honeybee, especially when that honeybee sends out her warning buzz of anger, which differs greatly from her usual good-natured hum. Man is a born hunter, and he doesn't like to be pursued by females, especially female worker-bees, bent on catching up with him.

A man deeply absorbed in his work rarely has time to let little irritations distract him. He is quite unconscious of them until they get between him and his work. Then he really gets angry. It is just the same with honeybees. Right now they are so taken up with the business of gathering nectar while the gathering is good, they rarely think of stinging. But let something get in their way! They will go around it for a few times, but if it continues to obstruct their way, well, they strike at it. If one alone cannot get rid of the obstruction, they gang up for the task. There is strength in numbers with bees also, and they never give up until they win.

What an example for humans! And our soldiers are following suit. There is a mighty big obstruction barring the way to freedom and world-wide democracy, and they are ganging up to rid the world of this menace, that never again may we be so threatened.

The promise of a bumper honey crop continues bright. Bees are working like mad, and are irritable just now, because of recent rains which slow up their harvesting operations. They have drawn out full supers of new foundation, filled them with honey, and partially capped them.

We have two really bad-tempered colonies, and we plan on getting rid of their queens, requeening them with new quiet queens. "Like begets like", so runs the old adage. These ugly swarms are those wild bee-tree bees captured long ago. They have more of a tendency to swarm than our Italians from the Southern States, so, introducing new blood should work a beneficial change.

The picture of Mr. Deyell and his much-supered colony in the July issue of Gleanings had nothing on our small yard here in the North, and if we can unearth our seldom-used camera, will try to send a snap-shot of our twenty-five plus colonies, in their shaded corner. I asked Honey Boy how much honey there should be in one of his highest sky-scrapers, and he replied "Good three hundred pounds". And is he proud of those bees! Every spare day he can get off work from welding amid gas fumes, dust, and noise, he hies homeward and puts in busy hours with his bees, getting the relaxation he needs. They are responding in a big way, too.

More and more am I convinced that beekeeping is the vocation par excellence. A vocation is a calling, is it not? Or is my smattering of Latin at fault? And beekeeping is a calling to which very few are really called. It requires much in a person. He or she must be painstaking, patient, slow-motioned though sure, indefatigable, not easily discouraged. Flighty, easily irritated, impatient persons should never undertake this business. They will not make a success of it.

Boy seldom wears either veil or gloves when working with bees, Sometimes he gets a sting or two, but very rarely. In one of Jean Stratton-Porter's books ("Her Father's Daughter", I think) she expresses the theory that fright causes a person to exude a certain odor which is at once detected by insects and animals. It sounds very reasonable. A cross dog knows the man who is afraid of him, spots him at once, and reacts to that knowledge. Bees, too, know at once. If you doubt me, try racing away from the busy workers, and I'll guarantee they will speed you on your way, in no uncertain way, either.

We know there must be war to restore lasting peace, and when peace is once again restored, and man can devote his time to humble earthy tasks, what a Utopia will be ours! The millenium only, can surpass it. —Spinster Jane.

American Honey Institute News Notes

Armour and Company, in their full-page, colorful advertisement in the July issue of WOMAN'S HOME COMPANION, had a picture of a ham in colors and the heading, in heavy type, read

For Your Holiday Week-end
Honey-Glazed Baked Star Ham

"It'll be a gloriously easy Fourth for you—if you have a delicious Star ham all ready in your refrigerator! Grand for quick luncheon or picnic sandwiches . . . . Or for a delicious buffet supper, serve it with cold sliced oranges. Wrap ham in its inside glassine wrapper and place fat side up in uncovered baking pan. Bake at 325° F. 18 minutes per lb. 45 minutes before done, remove paper and rind, score fat and cover with honey. Finish baking, basting occasionally with honey."

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The Spry Spotlight says "Let us plan a Cookie Cruise for you!" and gives a recipe for SHIP AHOY COOKIES, which call for one-half cup honey.

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Irradiated Evaporated Milk Institute puts out a delicious Honey-Butter Cream recipe which calls for one-half cup honey, one-half cup irradiated evaporated milk and one-half cup butter and in their booklet, entitled "Frozen Foods" has a recipe for Honey Parfait.

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The latest release from the **Sunkist Kitchen** contains recipes for Orange Honey Jelly and Orange Honey Bread and, by the way, have you tried the Orange Honey Cake on page 13 of "Old Favorite Honey Recipes". It is becoming a great favorite from coast to coast.

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A letter from the Director of Women's Activities of one of the metropolitan papers asks for ten copies of "Old Favorite Honey Recipes" for her assistants. She writes, " 'Old Favorite Honey Recipes' is the best we have seen on the subject".

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The June issue of PHYSICAL CULTURE contains an excellent article by Jane Randolph whom you will remember as a contributor to INSTITUTE INKLINGS. Her article has the clever title "Nature's Sugar Bowl".

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More publicity was given by **Dole Pineapple Juice.** They have a full-page advertisement, featuring "Honey-Pineapple Juice Glaze adds Zest to Ham". Then, they have a "Holiday Gem Cup". Also, "If You Like A Nightcap" (and who doesn't?) reading. "Heat one cup of canned unsweetened pineapple juice to the boiling point, pour juice over 2 tablespoons honey and 1 tablespoon lemon juice. The aroma is something to talk about and so is the flavor. Drink while it's hot and crawl in between the sheets."

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The American Honey Institute has been deluged with requests on how to use honey in canning.

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"Waffles with Honey Cream Cheese Whip" is a late two-page release by Kraft Cheese Company. A photograph accompanied the release and was used extensively in newspapers throughout the country. "Old Favorite Honey Recipes" includes cream cheese with honey in the sections on sandwiches, salads and desserts. Cream cheese and honey is a delectable flavor combination. The old cook books have recipes that call for cottage cheese and honey.

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Procter & Gamble, manufacturers of Sweetex—"The High-Ratio Shortening"—feature the use of honey as an ingredient in Honey Whole Wheat Dough—Honey Fruit Coffee Cake—Honey Fruit Filling—Honey Doughnut Glaze—Honey Nut Topping—Peanut Butter (Honey) Topping—Honey Fruit Coffee Cake—Honey Macaroon Cake—Honey Macaroon Icing—Honey Glaze—Peanut Butter (Honey) Streudel.

SWEETEST JOB ON EARTH

Mr. H. H. Schumacher of Alhambra, California, may lay claim to the sweetest job on earth. He is honey taster for a wholesale production company. He tastes more than 12,000 samples each year, and can tell from what blossoms the honey was produced, and often the locality from which the honey was produced.—L. H. Kohr, Seattle, Washington.

Editorials

The appropriation for the U. S. Bee Culture Laboratories which had been cut to $50,000 was finally restored to the original amount, viz., $83,000. This is good news. This shows what beekeepers can do when they contact their senators and representatives in Congress, and now the excellent work of the U. S. Bee Culture Laboratories under Hambleton can go on unhampered. Incidentally, Mr. Hambleton's work has been endorsed. See page 519, for particulars.

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Home-made Sun Extractor a Money-Maker The average beekeeper does not know how easy it is to make a real solar wax extractor. Secure a shallow box, five or six inches deep, and in it put oblong shallow pans, such as can be bought at 5c and 10c stores. Over the shallow box place a sheet of common, ordinary window glass, large enough to cover the entire box. Tilt up the back end on a block so that it will face the sun and, of course, looking toward the South. Paint the pans black.

As one goes through the apiary during a honey flow he will pick up spurs of wax, burr combs, brace combs, and sometimes combs built outside of the brood-nest. All of these, whether containing honey or not can be dropped into the aforesaid extractor and the wax saved.

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Prolonged Heat At moderate temperatures prolonged heat does much more damage to honey than a short quick heat at higher temperatures. The leading article in this issue presents again the Government filtration plan whereby honey is kept hot at a minimum of time. This plan is used by large packers on the Pacific Coast and somewhat in the East with apparent satisfaction.

There are others, including Dr. Phillips, who feel that some packers will go too far with the quick flash plan. In a recent letter he writes:

> The main point that needs to be made is that honey of good quality when it comes from the bees is good, and after it has been manhandled in probably a majority of the plants, it is no longer as good as it was at first. To eliminate or to reduce, and even to injure, the goodness of honey is not sound business sense. It seems to me rather evident that every effort should first of all be made to conserve the flavor of honey, especially honeys of prime quality, and that this step comes prior to efforts to promote sales.

The purpose of the flash method using a filter aid is to reduce the time element of heat. We have learned that those lacking in skill sometimes burn the honey when it is passing through the coils to the filter by the flash method.

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Honey Prices Some of the largest packers have reported that they do not know where they can buy a whole carload of last year's table or white honey. Small lots are still available. It is to be hoped that this condition, if true, will help the producers who have amber and dark honeys to sell their product at fair prices. The action of the Surplus Marketing Administration, Washington, D. C. (see page 382, June issue) to buy and distribute some of these amber honeys of good flavor for school lunches should have a favorable effect in cleaning up these left-over honeys of the Southwest.

For some strange reason in spite of rains and good weather the yield from white clover this season has been disappointing in numerous sections of the white clover area. Sweet clover, however, is apparently living up to its reputation as a dependable source.

Of this year's crop the reports up to date are conflicting. The yield in California will not come up to expectations measured by the heavy rains early in the season. In the West, some reports indicate a heavy yield while others point to a light to a poor year. Florida is having a good season.

Rather than sell at cut prices in order to get some ready money, put your honey up as collateral at the banks and borrow enough to take care of immediate necessities until you can definitely know what the price will be. The whole world is in conflict and no one can know what is going to happen.

In any event prices on all food

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products are rising and honey will not be an exception.

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A U. S. Hearing on Honey Bread By the time this reaches our readers there will have been a hearing under the Federal Food, Drug and Cosmetic Act on how much or how little honey can be used in bread and call it "honey bread". The proposed regulation requires not less than 16 parts of honey for each 100 parts by weight of flour. Such a minimum would have the practical effect of eliminating honey in all bread. Whoever proposed such a high percentage did not know that the use of honey is not to add to its food value but rather to make the bread moisture absorbing. Honey as is well known is hygroscopic (moisture absorbing) and when used, keeps the bread moist much longer than when neither honey nor invert sugar syrup are used. Or, to put it another way, when only 4 or 5 percent honey is employed it will keep the bread from drying or getting stale as quickly as a bread would if it is not used. The function of honey is therefore mechanical. A slight amount of sweetness may be detected in a honey bread but sweetness is not the object of its use.

Testimony will be introduced from a U. S. Chemist, from bakers and from the American Honey Institute, to show that the percentage of 16% is clear out of line and there is some fear that the Government people will not reduce the percentage to four or five percent. Unless they do, honey will be driven out of all bread.

Carloads of honey go into bread to keep it moist and it would be a calamity to both the honey and baking industries if this proposed 16% is adopted and made into law.

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Variation of Colony Strength In practically every apiary there is a rather wide variation of colony strength. There are usually some outstanding colonies that out-strip others in producing surplus honey. What a crop beekeepers would secure, if, when conditions are favorable for nectar secretion, all colonies were as good as the best.

This variation in colony strength and performance seems quite pronounced this season and the reason for it is apparent to those who take time to analyze the situation. It goes back to apiary management (or lack of it) that the colonies have received during the past year.

Most of us know how to develop populous colonies and to have them reasonably uniform in strength at the beginning of the major honey flow, but many of us fail to apply intelligent apiary management throughout the season. We fall down on the matter of supplying each colony with an abundance of stores and a good queen. Many colonies ran short of food—honey and pollen—this past spring and many old queens were superseded during the heavy brood-rearing period prior to the main flow. Consequently these colonies with poor queens and a shortage of food fell behind the colonies possessing all of the necessary requirements.

If we would take time to weed out worthless queens, supply each colony with a superabundance of good stores in the fall so that it would be unnecessary to do any feeding in the spring to prevent starvation, also to provide adequate winter protection and to supply ample comb space when needed throughout the spring and summer months we would have strong colonies of more uniform population and we would secure a big crop of honey, barring unfavorable conditions for nectar secretion.

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Proof of the Value of Honey for Infants Now that the question has been raised as to what we can truthfully say about the merits of honey on our honey labels, it is altogether proper that we should express the faith that is within us and give a little of the proof from a multitude of sources that honey has virtues for infant feeding, old people, and those with impaired digestion, not found in ordinary sugars.

Mothers' Institute in Jersey City

There has been in successful operation for over thirty years, an organization known as a Mothers' Institute, at 46 Mercer Street, Jersey City, New Jersey. It is the parent station for eleven welfare stations located throughout the city.

With the advent of the commission form of government in Jersey City, public health was taken up by Mayor Frank Hague some thirty years ago, resulting in the Mothers' Institute with Dr. M. W. O'Gorman, Chief of

Child Hygiene, in charge. In the many years that have gone by, we have heard much of the splendid work, not only how mothers keep their babies well, but how to build up into strong, healthy childhood, babies that came to the Institute emaciated to a point where it seemed impossible to save them.

On the 29th of June, the writer and Clarence L. Howk, East Orange, N. J., met Dr. O'Gorman, by appointment at the above address. We found a man of middle age, enthusiastic about his work (as he may well be), likewise a corps of nurses, not mere girls but women of mature years of experience. Seeing is believing.

Dr. O'Gorman assured us he was still using honey in his formulas of milk. He uses a diet consisting of whole milk, skimmed and boiled, modified with honey and fruit juices.

The hospital has the most modern medical equipment, and if any one of our readers could be in it for just a few moments he could not help but see how honey and milk with fruit and vegetable juices build up sickly or emaciated babies into healthy strong children.

The fact that there are other stations in the city where children are received, makes it possible to reach all classes, rich and poor, alike.

Dr. O'Gorman uses no medicine but believes emphatically in natural fruit juices and especially in honey, and the fact that he has continued with honey for over twenty-five years, with marvelous results is rather significant, to say the least.

While the medical fraternity at large does not recognize his work as yet, there are doctors all over New York City and Jersey City who do accept his findings and are sending their babies to the Mothers' Institute for diagnosis and treatment.

We hope to have pictures later on showing the interior of this Institute and a statement from Dr. O'Gorman.

The foregoing was submitted to Dr. O'Gorman, for correction. He makes none and adds:

In answer to your query about our use of honey, without reservation I can assure you that we have found it a valuable addition to our milk formulas in children's diets.

Apart from its being a natural food and quite palatable, we depend upon it to secure proper bowel regulation, thus eliminating the need for laxatives. We have used honey for years both in our clinic work and special feeding cases in the Mothers' Institute and also in all our cases seen in private practice.

Recent Evidence from the Journal of Pediatrics of St. Louis

Scarcely less important but probably more convincing to some of the medical fraternity, who regard honey as only another sugar, no better and no worse than any sugar, is the careful research work of Dr. Schlutz and Dr. Knott of the Chicago University covering four years and recorded in the June, October, and November issues, 1938, of the Journal of Pediatrics under the head of "The Use of Honey as a Carbohydrate in Infant Feeding". This work was reviewed in the Journal of the American Medical Association, for November, 1938, and is here given by permission:

"Schlutz and Knott studied the suitability of honey as the source of carbohydrate for ten healthy male infants aged one month or less. The period of observation continued until the infants were six months old. Formulas for all infants were restricted to either evaporated or dried milk and carbohydrate with additional supplements of pure vitamin or mineral solutions. The general well being of the infant, the number of stools daily, and weight gains have been used to determine the value of honey in regular feedings. Besides these criteria, blood sugar tolerance studies have been employed to contrast the response to honey with that resulting from administration of other common sources of carbohydrate. It was found that honey is easily digested, being absorbed more rapidly than most sugars during the first fifteen minutes after ingestion. It is well tolerated by the infant and does not cause diarrhea. It may facilitate weight gains, since there was a slight tendency for greater average gains daily to occur on lower calory intakes when honey was included in the formulas. It appears that honey should be recommended for wider use in diets of infants."

The following is the summary by Drs. Schlutz and Knott in the Journal of Pediatrics for June 1938, which is likewise given by permission.

"Honey appeared to have special advantage for infants because, with the exception of dextrose, it was absorbed most quickly of all the sugars tested during the first fifteen minutes following ingestion, yet it did not flood the blood stream with exogenous sugar. It also maintained both a steady and a slow decrease in blood sugar until the fasting level was again reached. With its easy and wide-spread availability, palatability and digestability it would seem to be a form of carbohydrate which should have wider use in infant feeding."

This, coming from Drs. F. W. Schlutz and E. M. Knott, Ph.D., Dr. J. L. Gedgoud, and Journal of Pediatrics, ought to satisfy all regular physicians of the virtues of honey for feeding small children. What is good for children ought to carry the same virtue to old people and others of impaired digestion.

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From North, East, West and South

NORTHERN CALIFORNIA, July 3.

Weather: Here in our part of the state we had no rain to mention in June. Up to that time the weather bureau reported but one season that had produced so much rain. The rain let up, but cold fogs continued the greater part of the month.

Queen and package dealers complained that they could not get matings of queens and their package bees were held or shipped behind time. But now that shipping time is about over, the majority of shippers report a good year.

Some beekeepers claim the cool nights and fog of the forenoons held their bees back in building up so that their bees were compelled to build up on honey flow.

Conditions of Bees: Very few could complain of the condition of their bees at the end of the eucalyptus honey flow. The flow from that source is slow but even. Bees that were ready for the flow average 60 lbs. The balance would run from 20 lbs. to 50 lbs.

Extracting is done and unless bees are moved to at least one other flow, feeding will have to be done. Most beekeepers in the large cities know this and do not take off the honey too closely.

Markets: The United States Department of Agriculture Surplus Marketing Administration announced early in June that it intended to purchase in carload lots a quantity of extracted honey, in either liquid or granulated form, not to exceed 7,000,000 pounds, from producers, associations of producers, or their authorized agents throughout the principal producing areas in the states of Arizona, California, Colorado, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming.

For some time California beekeepers had been claiming there was a surplus of honey in the hands of producers. The result was that over 1,000,000 pounds of minimum grade U. S. No. 1 quality honey was offered at 4½c in California alone in June.

Beeswax: There is a good demand for beeswax with prices more satisfactory to beekeepers.

Miscellaneous: Good reports continue to come into the office of the State Association concerning the condition of bees in all parts of the state. H. M. Krebs and his army of inspectors have AFB at a very low percentage, and best of all, they propose to keep it there.—Cary W. Hartman, Oakland, Calif.

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SOUTHERN CALIFORNIA, July 1.

Weather: Nights are quite cool making an overcoat feel welcome in the evening. No rain has fallen since our last letter but moisture remains near the surface of the ground. Streams are unusually high for this season of the year and every little channel is carrying water to the valleys.

With warm weather during July and August, which we have every reason to expect, we should get some honey from the wild buckwheat, toyon, sumac, and other late blooming shrubs.

Honey Crop: The honey crop thus far throughout Southern California is very disappointing. The abundant rainfall evidently built up our hopes too high. It was the universal feeling among beekeepers that California was due for a big crop, but we have discovered that it takes other conditions besides moisture to produce a crop. We would say there is one-half a crop with prospects doubtful for the balance of 1941. Orange and black sage honey where left on the hives until well ripened is of heavy body and excellent flavor.

Market: The demand for white honey from orange and sage has been greater than for several years with prices a little above those of last season.

We have not heard of sales of buckwheat-sage but we feel no anxiety along those lines as the crop is sure to be short and there is always a good demand for this excellent extra light amber honey. Up-state buyers were down here early looking for the orange and sage honeys,

something that occurs only once in several years.

Miscellaneous: Fifty beekeepers from all of the counties of Southern California, together with representatives from the state and national departments at Sacramento and Davis, met at the ranch of Joe Holtz in Orange County for a day's outing among the hills.

State bee inspector Krebs gave a talk covering the beekeeping conditions of the state in general with no very rosy picture for any particular section. Riverside (our) County has the largest registration—34,000 colonies.

County inspector Henry Perkins reported 60% of a crop in Los Angeles County with excessive swarming.

Dr. Eckert explained the Surplus Marketing Act with 4½c. offered for E.L.A. honey in liquid form.

In visiting the apiary Joe's hives were heavy with honey as no extracting had been done this season but he expected to begin within a few days. The bees were very docile and we walked around and among the hives without a veil and no one was stung.

This bee business is one vocation that has the most experienced of us guessing. A number of apiaries were sold after considerable effort just before the flow from orange started. Some of these colonies placed near the orange groves, with good care, produced enough honey in the following six weeks to pay for themselves. Where is there another proposition that could bring such returns?

The danger from forest fires is now great. An ordinance provides that a space 20 feet wide be cleared around all apiaries and the forestry men are more strict than formerly in seeing that every preventive measure is taken to keep fires from getting started.—L. L. Andrews, Corona, Calif.

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COLORADO, July 8.

Weather: Not in a dozen or more years have we had so much precipitation falling regularly during the winter and spring as we have had this year. Farmers and ranchers have been given renewed hopes for a more plentiful year as barren and parched plains and hillsides have been transformed into green pastures. In the past month the rivers and streams have been running to full capacity, often overflowing with water from the melting snow. This was augmented at intervals by the heavy precipitation which was more than twice the normal amount for June.

Colony Conditions: As heavy masses of snow still lay packed in the mountain crevices and on the slopes, irrigation water will be plentiful, at least for the early part of the summer. However, it takes many other favorable factors than mere moisture to produce nectar. Early in April reports were that aphis were attacking the alfalfa plants in Eastern Colorado. Beetles and weevils have since taken up destruction where the aphis left off. The final results are that little or no honey was secured from the first crop of the alfalfa. With the bees literally living from hand to mouth the colony strength has dwindled. Drones have been hauled out from the entrances and "taken for rides", which in itself tells an abbreviated story. This is quite a contrast to the conditions as they were a few weeks ago when some extended rainy periods confined the bees to their hives until they contracted the swarming fever badly.

Honey Prospects: The second crop of alfalfa, at the present time, looks very promising, and we should have a fair flow from this source in a few days unless something happens to it as in the case of the first crop. Sweet clover, too, on account of the generous amount of moisture looks very good. In the San Luis Valley, however, there is a serious shortage of sweet clover plants owing to the fact that it was too dry last season for the seed to germinate. The bees wintered very poorly in this mountain valley of an altitude of nearly one and one-half miles high. A loss of fifty per cent and more has been reported, and the rest of the colonies reduced to mere remnants.

Market: The old crop of honey is gradually being cleaned up. This is especially true of the lighter grades while the light amber and darker grades are more plentiful. The demand for honey is still holding up well but is beginning to yield the right-of-way to the various fresh fruits that are coming onto the market. With the general tendency of rise in prices of other commodities honey also should stand a good chance. Beeswax is in a better demand as lately offers of several cents above those of a few weeks ago are being advanced.—G. A. Pauli, Pueblo, Colo.

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TEXAS, July 1.

Weather: June has been very much to the liking of the bees. Over much of the State reports of normal or better honey flows are common. In some places beekeepers are reporting the best crops for years, while in others and at a distance from the reported large crops, beekeepers report nothing at all. As near as could be ascertained from the scattering reports given at the annual meeting of the Texas Beekeepers' Association on June 19-21, the large majority of the beekeepers are well pleased with the crop but many of them are wondering whether they will be able to obtain a flow from cotton. Some few beekeepers, especially from the southwestern part of the State, reported that there was a flow from mesquite just beginning. The consensus of opinion of beekeepers was that they were well satisfied with their crop this year.

Miscellaneous: Along the Gulf Coast and extending northwest through eastern Texas, is a plant belonging to the carrot family in some places called prairie parsley. This plant is well known to the collectors of insects throughout the southern states, however it is not mentioned as being a honey plant. This spring numerous reports from the Gulf Coast of a honey flow from wild carrot came in. Knowing that the common wild carrot was not visited by insects, an investigation was made and it was found that the plant in question was *Polytaenia Nuttallii* (DC) Coulter and Rose. Several beekeepers report that they had a heavy honey flow from this plant. Samples of the honey show a peculiar amber with a reddish tinge and a rather pleasing flavor. This plant was found to occur in quantity in waste places from just west of the Brazos River through to the eastern boundary of Texas and south to the Gulf. This is an instance of an occasional honey plant, as the country in which this plant was nectar-bearing this year, has been traversed many times in former years and this spring is the first time it has occurred in sufficient quantity to attract attention.

Beekeepers are always interested in odd sources of honey. This spring bees collected honey abundantly from extra floral nectaries located along the midrib on the underside of the leaves of the catalpa tree. The catalpa is very common throughout the timber lands of East Texas and one or two beekeepers are sure that their bees secured enough nectar from catalpa to help with the honey flow. —H. B. Parks, San Antonio, Texas.

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LOUISIANA, July 1.

Weather conditions have varied widely since our last report. An early spring with an abundant willow flow induced heavy brood-rearing and exhausted stores just at a time when daily rains, high winds and cool spells kept the bees at home —and many colonies starved unless feeding was resorted to to carry them through. The "build-up" was so slow that many colonies are yet too weak to store a surplus during June, and the strong colonies were mostly encouraged to swarm owing to hive congestion over the many rainy days during the month.

Crop prospects are fair. Honey plants are in fine condition—all we need is sunshiny days for the bees to work. The limiting factor will be the large number of colonies not yet in prime shape for the harvest. Honey extracted up to this time is much lighter than usual and this writer has resorted to brood-nest robbing in order to get enough dark "stuff" to restore our standard rich amber color. What a horrible practice this will seem to our white honey producers.

Miscellaneous: As recently as our last Federation meeting in Tampa, we were all delighted to listen to Dr. Ouida D. Abbott's talk on the great part that nutritional foods were to play in our national defense. Dr. Abbott was—easily—the outstanding speaker at this meeting and we take great pleasure in making the following quotation from her talk as published in the reports of the Conference proceedings. Quote,—"As a general proposition the greatest lack in the food we eat is iron. One of the foods containing MOST ASSIMABLE MINERALS IS HONEY. Devitalized and demineralized sugars and syrups have NO MINERAL VALUE AS A FOOD. Denatured sugar and demineralized dextrose is worthless. Milk by itself lacks iron. HON-

EY CAN SUPPLY VITAMINS* AND OTHER MINERAL LACK TO BABIES who are born to undernourished parents or to babies which are themselves deficient." Unquote. Capitals ours.

There was not one dissenting voice raised by any of the other AUTHORITIES present—nothing but praise was heard in their comments,—but Mr. Reed is expected to suffer in silence.

The Southern States Beekeepers' Federation meeting will be held in Lynchburg in October and the Louisiana delegation are making their preparations to attend. There is little program information available other than that it will be as good as usual —with prominent speakers who will handle subjects of current interest.

The Federation has been a very useful organization during the past years as its membership consists of our most efficient breeders and shippers of package bees; men who understand the needs of our northern honey producers; men who are eager to fill these needs in the most satisfactory manner. Come to Lynchburg and meet them,—you will not be disappointed.—G. W. Bohne, Luling, La.

*There has been some question whether honey contains vitamins but we consider Dr. Abbott high authority.

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IOWA, July 8.

Crop Condition: The acreage of sweet clover has been unusually abundant this year but many colonies were not built up sufficiently to take full advantage of the nectar which might have been available. The season has been full of unusual conditions and unexpected circumstances for the producers. In spite of these situations a good average crop of honey has been obtained.

One of the interesting features was the difficulty with which the colonies built up and then were confronted immediately with an advanced flow of nectar from all plants. This was partly overcome by the tremendous increase in acreage of yellow sweet clover which seemed to carry through a longer period than normal. The white sweet clover probably did not continue any longer than normal and probably did not yield as much total nectar as is customarily true with sweet clover throughout this state.

Market: It is yet too early to make any forecast relative to honey prices and the market situation. It does seem, however, that honey producers should be able to participate in the general price rise of all food products. Surely the materials which they have had to buy are higher than usual and it is necessary to get more for honey in order to make even as much as has been possible during the past few years when honey prices were exceedingly low.

It will be interesting to note the effect of the purchases by the surplus commodity corporations of honey in the western section of the United States. It has been said that the price for the entire country has been established by the price at which honey is offered in California. With this source of honey removed it will be interesting to note if there is any increase in price for midwestetrn producers when this carry-over in the western states has been eliminated.

Miscellaneous: Beekeepers are urged to contact the State Apiarist's office for changes which have been effected in the inspection law by the last legislature. This will affect some of the work within the state as well as shipment of bees and used beekeeping appliances from out of the state.

The annual meeting of the Iowa Beekeepers' Association will be held at Ames, November 13 and 14. This is a slight change in the date and a definite change in the place of meeting from previous announcements which have been sent out.

The fall series of radio discussions from WOI are scheduled to begin again on Monday, September 15, at 6:30 a. m. Most of the regular listeners are aware of this program and will be looking forward to its inauguration. There may be some who have not contacted this program and those are invited to get in touch with these weekly chats for honey producers of the state.

The summer meetings recently held offer excellent opportunity for beekeepers to get together for an apiary discussion of beekeeping problems. The local people in charge of these two meetings deserve a great deal of credit for the effort which they put in in developing a program for visiting honey producers.

The Veteran's CCC Camp at Denison was transferred on July 1 to be-

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come a part of the camp at Audubon. The camp has been in operation at Denison for six years, during most of which time the veterans had held a regular class in beekeeping. During that time many had become interested in the work and had become owners of colonies of bees. The educational program in honey production is recognized by the CCC officials as one of the most effective of any line of effort undertaken with this group of students. The Denison camp had recently completed a honey house with complete equipment of extractor, settling tank, and running hot and cold water. It is to be regretted that this change has come upon the beekeeping class just at a time when they had assembled so much equipment in order to make honey production efficient and profitable.—Prof. F. B. Paddock, Ames, Iowa.

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SOUTH DAKOTA, July 5.

Weather: It's very nearly perfect. There is moisture in the soil and occasional rains to keep everything growing with abounding vigor. It's one of the best years we've had in a decade, and it's honey weather!

Crop Prospects: Fields of sweet clover dot the landscape and it's yielding heavily. Evenings after sunny days are delightfully scented from the clover and the bees are "all out" for more supers. Good colonies have already stored up to a hundred pounds. "It's a 300-pound year", one beekeeper recently remarked. I think that is optimism running wild, yet it could be true with two months of our season remaining. A yield of 300 pounds per colony would be devastating. It would undermine our local social stratum by banishing us beekeepers from a life of carefree and complacent leisure at least for the duration of our harvesting and marketing season, no less.

Some clover fields have been cut for hay while a few others are being pastured. These fields will continue to flourish over an extended period because of the setback. Myself, I'm next to the last load of supers so all I can do is pray to the bees for time till I can beg, borrow, or buy some more.

Miscellaneous: There is a tendency around here of decreasing the number of colonies per yard and running more yards instead. Advantages are increased floral range and spreading the risk in case of an fb outbreak, or some other unforseen occurence. I've got mine down to 20 colonies per yard now. When you roll into the bush to a yard of 20 it looks like a situation a fellow can handle with brilliance and dispatch. I had a yard of 60 colonies once. When I got there my enthusiasm always jammed. I felt more like hiding under a gooseberry bush than cracking covers.

I usually rear a few queens each season. This year I saved the tedium of dipping cell cups on the end of a stick by picking off the cups the bees make along the bottom-bars. The bees like them better than the man-made kind anyway.

Propolis has its points. When I scrape off a wad I drop it into the smoker. The result is pleasing. Yours for fragrance from the smoker.—J. F. Norgren, Junius, So. Dak.

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WEST PENNSYLVANIA, July 4.

Weather: We backyard beekeepers of Western Pennsylvania are feeling somewhat jubilant this year after the two proverbial lean years just past. 1939 and '40 was possibly the poorest in the bee history of this section and two years of complete failure in succession had its effect. A great many farmers who had been keeping from 20 to 40 colonies are now almost entirely out of bees and so far have shown very little inclination to replace as it did not look very promising this spring. From January to the first of June we had less than 50% of our average rainfall but the first half of June gave us plenty of rain. The plant life immediately took on new vigor and the bees seemed to respond with all their power and have been hitting on all cylinders since.

Crop conditions: Bees are carrying in an abundance of the finest honey we have ever produced. Our locust bloom was very light and even though we have a very heavy white clover bloom it is practically worthless as a bee pasture this year. The bloom is abundant all around my bee yard yet I have not seen a single bee on a white clover blossom. I have tested the white clover in many sections over a radius of several miles and find no nectar in any of it. In

spite of these conditions the bees are doing fine, not over-swarming, just working. If the present flow continues for another 10 days I have one colony that will yield its fifth 28-section super and that is fine for our section of the country.* We are having no trouble marketing at a good price.

Miscellaneous: I was somewhat amused with Mr. E. R. Root's article in July Gleanings on Rough and Ready Chicken. My experience has been we needed a hacksaw and a pair of tongs, and then didn't get much.—Leander Moore, Waynesburg, Pa.

*Note: If the honey is white it seems possible that it is being gathered from sweet clover or alfalfa, inasmuch as white Dutch is not yielding.—Editor.

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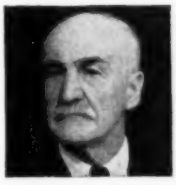
NORTHERN MAINE, July 4.



Weather: Maine is rather a large state and weather conditions vary a great deal throughout the year. Aroostook, the most northern county, is nearly as large in area as the state of Massachusetts. Here, May was a very cool and windy month. June ushered in warmer weather but with some of the coldest days I ever recall during this month. While most of the eastern part of the country has suffered from lack of rain, Aroostook has had many showers and all vegetation is coming along well. However, the cool weather has not been favorable for the secretion of nectar or flight of bees.

Conditions: Bees dwindled badly during May and even the strong colonies gained slowly. Now all are on the gain and swarming is getting into full swing. Most of the first swarms have been caused by supersedure rather than crowded conditions. White clover is now in full bloom, July 4, and alsike close behind. With favorable weather there should be a flow of honey in the next two weeks which should fill the supers. To date there is not a finished super and half the colonies have done little work. Nearly all beekeepers here work for comb honey in sections. We have had some 30 colonies in two-story ten-frame hives. While these are strong they have stored no honey in supers, but are throwing heavy swarms which will store honey rapidly in supers when hived on drawn combs, if conditions are right.

Bees wintered better farther south where they get one or more flights during the winter and built up well. Honey was starting off well but to what extent the dry weather has affected nectar secretion I have no report. Where many run for extracted honey there should have been a good flow to date. The season here is still ahead and the next three weeks will tell the story.—O. B. Griffin, Caribou, Maine.

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ONTARIO, July 4.

Weather: At this date, July 4, beekeepers in most sections of Ontario south and east of the Great Lakes, will know how they are faring so far as the light honey crop is concerned. Basswood is just opening and may change the picture in some localities, but locally it has failed us so frequently during the last decade that we never count on it. The season has been very early and some records have been beaten locally according to meagre references we have at our disposal.

Crop Conditions: A few days ago we travelled about 100 miles west from our home here in York County and every apiary that we saw along the highway was well tierred up with supers. The quality of the honey appears to be excellent, but we will not extract any for a few days, so cannot speak positively on that factor as yet.

During the very wet season of 1940, clovers were stimulated and this year appeared almost everywhere in pastures, waste lands, etc. The drouth dried up the white Dutch by the time alsike was ripe and no doubt curtailed the crop somewhat. This prolonged drouth has, we understand pretty well killed out all spring seeding of clovers, so possibly we will have little alsike or white clover next season. Alfalfa is not so much affected as the old stands last for a good many years even if that sowed this spring is killed. While alfalfa is increasing in value as a honey plant each year here in Ontario, it is not by any means a good substitute for alsike in our district.

Market: As to the marketing

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prospects every one we have talked to hesitates to make any positive statement as to what we may expect. Rising prices of corn syrups, sugar, and other commodities, coupled with the prospects of a rather light fruit crop, are some of the factors that indicate a better local market for honey. The export situation is the most puzzling and is no doubt the greatest factor in determining prices. Honey is wanted in Great Britain and they are ready to take a large quantity, IF,—and here this little word means so much—shipping space can be secured to carry it across the Atlantic. The firm that we have sold to for many years has intimated that they want our honey and expect to be able to get it delivered. We are not counting too much on this source for fear of being disappointed.

Miscellaneous: For many years past we have wondered what factors in weather, soil, or atmosphere, were responsible for nectar secretion or lack of it, and observations made during the past few weeks have made me all the more curious.

In 1939, a long drouth and absence of honey producing flora, left one of our apiaries run for comb honey, with a large number of partly finished sections. Fifty miles away where we have some bees, there were hundreds of acres of sweet clover being left for seed. As we never had comb honey colonies in a sweet clover district we visualized how rapidly the bees would fill up those sections if we moved them to this place. So the boys screened up the bees and traveled during the night to deliver them to this location. The weather was quite dry but we have often had worse drouths that did not affect nectar secretion. To make a long story short, these bees did not get enough honey to pay for the trouble of moving.

This year the drouth in this district has been very severe with farmers' crops suffering and all pastures dried up. A few fields of sweet clover are in evidence but not a tenth of the acreage we had in 1939. The boys had been up to see the bees and reported that alsike was about dried up and white clover almost non-existent in so far as blossoms were concerned. Before going up on next trip to see what the bees were doing, we telephoned to the farmer on whose place our bees are located, and he informed me that the drouth was unbroken. The next morning we had almost decided to go up in the car and not take the truck with supers, as we expected none would be needed. On second thought, I advised them to take a load of supers and if conditions looked hopeless, to bring them back. Well, they did not bring them back, but had to return shortly to take up more supers. So we have about come to the point when asked as to why honey is coming in or not coming in, to make no positive statement as to the why or wherefore.

Bees do nothing invariably, we are often told. We see something occasionally that makes us agree with that dictum. Here is a recent case in point: Examining colonies at an apiary run for comb honey this year, we found a colony that had superseded the old queen in May and the fine young queen was laying nicely. My grandson was with me and he was told that there would be no trouble with swarming in that colony even in comb-honey production, as a queen reared and left on the same stand never swarmed that season. We did not clip the queen. A week later when going over this apiary, we found that this colony had swarmed and left for parts unknown. While this may happen oftener than we think, it is the first time in our experience, and just about proves that "bees do nothing invariably".—J. L. Byer, Markham, Ontario.

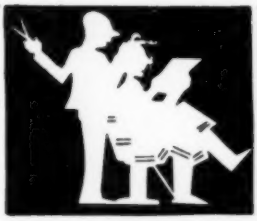
A New Honey Market

By O. O. Chilton

There is a lot of honey produced in Wayne Co., Mo., and the local market is usually glutted. So I was forced to find a profitable outlet for all the honey I produce. Here is the new way I tried and found that it works fine: I packed my honey in 2½, 5, and 10 lb. pails, obtained the names and addresses of grocers within a radius of 300 miles and sent them order blanks and price lists. Many of the grocers lived in sections where no honey was produced. They proved profitable customers. My market problem has been solved.

Leeper, Mo.

Just News



The Empire State Honey Producers' Association will hold its annual field day at Taughannock Falls State Park, on Lake Cayuga near Ithaca on Saturday, August 16. All beekeepers are invited to bring lunch baskets and enjoy the picnic together at noon. This is an important opportunity for beekeepers to meet each other, to exchange ideas and obtain information valuable to their business. A short business session will be conducted.—E. T. Cary, Sec.

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Annual Vermont Beekeepers' Picnic-Meeting will be held Saturday, August 23, at the apiary and residence of Clyde N. Wood, South Woodstock, Vermont. Mr. Wood's place is on Route 106, 8 miles from Felchville, and 6 miles from Woodstock. There will be signs on the road to direct beekeepers to the meeting. All interested in beekeeping, with their families, from Vermont and adjoining states are invited to attend. Interesting speakers, discussions, and practical demonstrations of beekeeping practice will comprise the program. Bring smoker for smoker contest, and samples of your best honey for judging. Prizes will be awarded. Don't forget the lunch. Meeting starts 10 A. M., D. S. T.—Charles Mraz, Sec.

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The Middlesex County Beekeepers' Association will meet at 2:30 P. M. on Saturday, August 30 at the Woodville apiary of Mr. Tolstrup and Mr. Ryder. On Rt. 135, halfway between Westboro and Hopkinton, a sign will direct you up Spring St. to another sign at the apiary. Dr. Burton N. Gates, Chief Apiary Inspector of the Commomwealth of Massachusetts, will speak on "Beekeeping Trends". The Ladies' Auxiliary will supply supper featuring steamed corn, hamburg smothered in peppers, hamburg rolls, green salads, cold drinks, ice cream, honey cakes, and coffee. Worcester County Beekeepers are especially invited to this meeting. Please bring your plate, cup, and silver.—A. M. Southwick, Pres.

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The Third Annual South Carolina Beekeeping Short Course will be held Aug. 26-27. at Clemson. Professor Dunavan announces a tentative program to include talks by J. H. Girardeau, State Entomologist of Georgia, J. J. Wilder, Waycross, Georgia, Prof. F. B. Meacham, teacher of beekeeping at North Carolina State College, P. G. Craddock, State Bee Inspector of North Carolina, and possibly other out-of-state speakers. Numerous contests will be included in the short course this year to keep all in attendance on their toes. Professor Dunavan states that such contests as guessing contests, question contests and handy gadget contests will be held. The writer is planning a Honey Show to be held during the Short Course as an object lesson in honey packing and packaging.—E. S. Prevost, Bee Extension Specialist.

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The following letter under date of July 10, 1941, has just been received: "This will acknowledge with thanks your communication as to the restoration of the appropriation for bee culture. As passed by the House, the bill carried an appropriation of $50,000 for this purpose. The Senate voted an increase of $33,000, or a total appropriation of $83,000. The Conference Committee retained the increase, and, as you will see on Page 24 of Public Law No. 144, the final appropriation is $83,000 for bee culture and apiary management. I appreciated your views on this matter, and I was glad to have voted for the appropriation for this purpose.—Harold Burton, U. S. Senator."

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The Southern Beekeepers' Conference meets in Lynchburg, Va., on October 21, 22, and 23. Following is the program for the first day. Programs for the other two days will appear later.

TUESDAY MORNING, October 21
A. V. Dowling, presiding

8:00 Registration — Convention Hall—City Armory
9:00 Order of the Day — President Dowling
Invocation — Elder R. F. Woods
Welcome to Lynchburg — Carter Glass, Jr.
Response — L. M. Dewey
Announcements
10:00 The Ladies Place in Our Industry
Mrs. R. E. Foster, Gainesville, Florida

10:15 The Beekeepers Duty to His Family, His Neighbor and Himself
M. G. Dadant, American Bee Journal
10:30 The Value of Organization
E. G. LeStourgeon, Editor, "Beekeepers Item"
10:45 Song
11:00 Breeding from Progeny Tested Queens E. C. Bessonet, Donaldsonville, La.
11:15 Producing Honey in South Georgia
J. H. Girardeau, State Entomologist
11:30 How Horse Racing Affects Maryland Beekeeping Geo. J. Abrams, College Park, Md.
11:45 Committee Appointments
President Dowling, Valdosta, Ga.
12:15 Lunch

TUESDAY AFTERNOON, October 21

1:30 Mississippi Queens M. S. Fortune Mayhew, Mississippi
1:45 What We Know About Your Queens
Dr. Jas. I. Hambleton, Bee Culture Laboratory, Beltsville, Md.
2:15 50 Years Producing Bees
M. C. Berry, Montgomery, Ala.
2:30 By-Products of Our Industry
H. H. Root, Medina, Ohio
3:00 Bees in Virginia Orchards
A. H. Teske, Extension Horticulturist, Blacksburg, Va.
3:20 Our Interest in Honey Mrs. Walter T. Kelley, Paducah, Ky.
3.40 Constructive Policies of Southern Conference
1. Convention Cities
2. Honey Show Advertising
3. Publishing a Non-Credit List
4. Membership Dues
5. Permanent Secretary-Treasurer
7:30 Screen Pictures
8:00 Apiary Inspectors P. G. Craddock Raleigh, N. C., Presiding
Ladies' Auxiliary
Mrs. A. V. Dowling, Presiding
Virginia State Beekeepers' Association
W. A. Caldwell, Presiding
North Carolina State Beekeepers' Association F. L. Huggins, Presiding

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The Pennsylvania State Beekeepers' picnic and field day will be on August 23, at Geiman's Park, Route 34, between Gettysburg and Biglerville.

Elmer F. Reustle, presiding.

Registration and Acquaintance—9:30-10:30.

Address of Welcome—M. T. Hartman, County Agent, Gettysburg, Pa.

Response—E. B. Everitt, Muhlenburg College, Allentown, Pa.

Demonstration, Handling and Care of Comb Honey—E. J. Anderson, Extension Apiarist, State College, Pa.

Apiary Inspection Work in Penna.—H. B. Kirk, Senior Entomologist, Harrisburg, Pa.

Roll Call of Counties, Greetings from Visitors and Supply Companies.

12:00-1:30—Basket Lunch

Lemonade and coffee will be furnished free by Adams, York and Cumberland County Associations.

Afternoon 1:30-2:30

Review of Agricultural and Beekeeping Industry in Pennsylvania—Hon. John H. Light, Secretary of Agriculture, Harrisburg, Pa.

Report of Research Work on Resistance to American Foulbrood, and Research on Pollen—Dr. Jas. I. Hambleton, In Charge Division of Bee Culture, Beltsville, Fd.

2:30

Games and Contests—E. J. Anderson and several assistants.

Prizes will be awarded to winners of games and contests which are the contributions of advertisers in the Pennsylvania Beekeeper.

Honey Cooking Contest—Miss Mildred L. Adams, Home Economics, Gettysburg, Pa.

Opportunity to visit the honey plant of E. H. Sachs, near the picnic grounds will be given following the games of the afternoon about 4:00 or 4:30.

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The Ottawa County (Michigan) Beekeepers' Association will hold its annual picnic jointly with Muskegon and Kent Counties on Saturday, August 9, starting at 1 o'clock. Speaking, games, prizes, music and honey displays will feature the program.—N. J. Smith, Pres.

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The Annual Conference of the American Honey Producers' League, American Honey Institute, Bee Inspectors of America, Empire State Beekeepers' Association and Ontario Beekeepers' Association will be held in Niagara Falls on November 12-14. This promises to be one of the largest international bee meetings ever held. A well-balanced program of unusual interest is in the making, the details of which will appear in the September bee journals. Canadian as well as American beekeepers are cordially invited. It seems probable that at least one session may be held on the Canadian side.

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The Wyoming and Livingston County Beekeepers' Association will hold their annual meeting and summer picnic at the home of Guy A. Bailey on Temple Hill in the Village of Geneseo, N. Y., on Sat., Aug. 23, 1941. An extracting and honey demonstration will be given. There will be a question box. Bring your questions, and Prof. Geo. Rea will answer them. Bring your picnic dinner. Coffee will be furnished. Every one interested in bees is cordially invited.—F. G. Benedict, Sec.

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The Tri-County Beekeepers' Association meeting held in Delphos, Ohio, on June 29, was well attended in spite of rain. Homer Nihiser presided. Dr. W. E. Dunham in talking on "Beekeeping and the Defense Program" mentioned the need for more bee, milk, and butter which should mean more clovers and consequently better bee pasture. From experimental work done by Dr. Dunham on seed pollination it seems apparent that there is competition between clovers in attracting bees. The nectars of some clovers have a higher

sugar content than others. The character of the soil may enter in. Maximum pollination resulting in 120 seeds per head of alsike means about 18 bushels per acre. Talks were given by W. D. Achord of Findlay, A. J. Halter of Akron, and R. B. Willson of New York City, affiliated with the John G. Paton Co., and Bob Porter of Delphos.

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The Indiana-Michigan-Ohio Beekeepers' Chautaqua meets on August 6, 7, and 8, Pokagon State Park, Angola, Indiana.

PROGRAM

August 6

Chairman of sessions: H. R. Matthews, Pres. Indiana Beekeepers' Ass'n.

a. m.
8:00-10:00—REGISTRATION.
10:00—Early Indiana Beekeeping—L. R. Stewart, of "Round-up Fame", Newport, Ind.
11:00—Features about the Honey House—Roy A. Grout, Dadant and Sons, Hamilton, Ill.
12:00—LUNCH—Pokagon State Park.

p. m.
1:00—The Problem of Airplane Dusting—E. R. Root, Sr. Editor, Gleanings in Bee Culture, Medina, Ohio.
2:00—Queen and Package Shipping—R.H. Dadant, American Bee Journal, Hamilton, Ill.
3:00—Symposium: Problems with Package Bees—Representatives from Southern Bee Shippers.
4:00—Drawing of Free Prizes.
Some Thoughts on Out-Apiary Management—M. J. Deyell, Editor, Gleanings in Bee Culture, Medina, Ohio.
5:00—Soft Ball Baseball Game—Indiana-Ohio.

AUGUST 7

Chairman of sessions: Walter E. Becker, Pres. Michigan Beekeepers' Ass'n.

a. m.
Music by the Honey Harmonizers, and during the day.
9:00—Sixty Years of Michigan Beekeeping—Floyd Markham, Ypsilanti, Mich.
10:00—A System of Management in Commercial Apiaries to Weed Out American Foulbrood.—Dr. W. E. Dunham, Ohio State Univ., Columbus, O.
11:00—Resume of the 1941 Activities of the American Honey Institute—Mrs. Harriett M. Grace, Director, American Honey Institute, Madison, Wis.
12:00—LUNCH.

p. m.
1:00—Research on American Foulbrood and Pollen—Dr. James I. Hambleton, In Charge U. S. Bee Culture Laboratory, Beltsville, Md.
2:00—Straining Honey in the Honey House—Dr. E. F. Phillips, Cornell Univ., Ithaca, N. Y.
3:00—Symposium: American Foulbrood Resistant Stock—Discussion Leader: Dr. James I. Hambleton.
4:00—Drawing Free Prizes.
The Vicious Circle in Beekeeping—E. T. Cary, Honey Packer, Syracuse, N. Y.
Address—Leo Cadd, Commissioner, Michigan State Dept. of Agriculture.
5:00—Soft Ball Baseball (Championship Game)—Michigan-Winner from previous day.
7:00—Master of Ceremonies—Jere Frazer, District Mgr., The G. B. Lewis Company, Springfield, Ohio.
Why Jack Spratt Could Eat no Fat and his Wife no Lean—Prof. R. H. Kelty, Michigan Agr. College, East Lansing, Michigan.
Information Please:—Conducted by James E. Starkey, Sec'y. Indiana Beekeepers' Assn., Indianapolis, Ind.
Drawing for Special Free Prizes.
Colored Motion Pictures.

AUGUST 8

Chairman of sessions: Lloyd C. Gardner, Pres. Ohio Beekeepers' Ass'n.

a. m.
9:00—Problems Encountered in the Production of a 250,000 Pound Honey Crop—Emerson Long, Commercial Beekeeper, St. Paris, Ohio.
10:00—Why the Present Price of Honey?—Clifford F. Muth, Vice-Pres. Muth Bee Supply Company, Cincinnati, Ohio.
11:00—The Worst Enemy of Beekeeping—Prof. Geo. H. Rea, Cornell University, Ithaca, N. Y.
12:00—LUNCH

p. m.
1:00—Maintaining of Reserve Queens and Queen Introduction—Dr. Carl Schaefer, U. S. Bee Culture Station, Madison, Wis.

Entrance fee to Pokagon State Park is 10c per person—good for entire three days. To avoid paying extra 10c fee, it is necessary to obtain pass at entrance gate when leaving park. Camping fee is 25c per day for each tent, or trailer. Water and firewood free.—Jas. E. Starkey, chairman of Educational Program Comittee.

Free Prizes offered to date. If more are given will advise.

Dadant & Sons, Hamilton, Ill.
3—10 sheet boxes 8½" Crimp-wired brood foundation with hooks.
1—Copy—History of American Beekeeping—by Pellet.
1—Copy—American Honey Plants—by Pellet.
1—Copy—First Lessons in Beekeeping—by Dadant.
1—Bee Hat.
1—Pound box—Cut comb surplus fdn.

G. B. Lewis Company, Watertown, Wis.—Branch Springfield, Ohio
5—10-frame—Lewis Rot-Proof Hives—complete.

Hubbard Apiaries, Onsted, Michigan.
100—Standard Hoffman Brood Frames.

Schmidt's Economy Foundation, Bay City, Michigan.
1—5-pound box thin surplus fdn.
1—12½-pound box 8" plain brood fdn., 7 sheets per pound.

A. I. Root Company, Medina, Ohio
1—100 Sheet box—3-Ply Airco Fdn.
100—Root Triple-locked corner frames.
1—Copy—A B C and X Y Z in Bee Culture—by E. R. Root.
5—One-year subscriptions to Gleanings in Bee Culture.

M. H. Hunt and Son, Lansing, Michigan.
2—Root Jumbo bee smokers.
2—Delphos wire bee veils.
3—8" hive tools.

Fred W. Muth Company, Cincinnati, Ohio
20—10 sheet packages Hercules Ironsides wired foundation.

August Lotz Company, Boyd, Wisconsin
5—100 boxes—Lotz beeway sections.

A. G. Woodman Company, Grand Rapids, Michigan
3 big smoke bee smokers with shields.
6 smoke engine bee smokers with shields.
3 smoke engine bee smokers.

(Continued on page 532)

Asked and Answered

Chyle and Royal Jelly

Question.—If you have any data on relative vitamin or mineral contents of chyle and royal jelly I wish it. In other words, give scientific reason why chyle dwarfs the egg-laying function of the worker bee.—Bruce Anderson, Va.

Answer.—I think that all that can be said is: **We do not yet know.** I believe that most of the work on the chemistry and vitamin content of royal jelly has been done in your country, and is therefore doubtless familiar to Mr. Anderson. As I hinted in a recent article in Gleanings, I think that the queen's powers have been hypertrophied in certain directions quite as much as (or more than) those of the worker have been reduced. In other words, it is royal jelly that is the problem, the worker's larval food being more or less what infant bees always were fed upon. ("Chyle" is a term better dropped, as it is associated with the erroneous notion that the nurse bee regurgitates the contents of her stomach—this, it appears, is anatomically impossible as well as proved chemically not to occur).—Miss A. D. Betts, Editor of "The Bee World", London, England.

Processing Honey for Local Market

Question.—Up until now I have had good luck liquefying my honey. It came out clear and a very good color. I am just a small producer and melt my honey in a wash boiler using a kerosene stove, doing two 60-lb. cans at once. Just recently I tried to melt some and I cannot get it to come out clear. When I hold the glass jar up to the light it looks like very fine minute particles of dust in the honey. I put the cans in the boiler and fill it up with water. The cans are placed on sticks so they will not rest directly on the bottom of the boiler. I turn on the burner full blast and start melting. (I notice by the last Gleanings in Questions and Answers you advised not to have the water warmer than you can put your hand in. Maybe I am pushing the fire too much.) Although I have tried a small quantity of honey in a small kitchen type double-boiler and brought the temperature up slowly I get the same results. I have been very careful not to let the temperature get over 160° and have taken it out right away after it reaches 160. Then I tried in this double-boiler to hold it at 160 for 15 minutes getting the same results.—Robert F. Carr, Mich.

Answer.—For a number of years I have been selling honey, after liquefying and straining it in the basement of my home. I use a wash boiler, as you do, placing some sticks underneath the 60-lb. cans of honey to allow the water to circulate under the bottoms of the cans. The water is heated over a gas plate and I turn the flame just high enough to heat the water as hot as my hand can bear. I can tell from experience just how high to turn the gas flame. If the honey is granulated solidly in the cans, it usually takes ten or twelve hours to liquefy it. After it is liquefied I strain it through two thicknesses of fine cheesecloth into a 45-gallon tank. I simply lift the cans of liquefied honey out of the boiler and empty the honey out of the cans into the tank, which is equipped with an arrangement for holding the strainer cloths. This metal strainer supporting screen is listed in our catalog. I wouldn't be without it. You perhaps have the same arrangement. The honey, after it is strained into the tank, has a chance to settle. By that, I mean that the fine particles of air in the honey rise to the surface. By the time the honey is drawn off into containers it is clear. At one time I sold honey to grocers in glass containers. In order to retard granulation, it was necessary to heat the honey again to at least 150° Fahrenheit, then put it into jars while hot and place the tops on the jars immediately. At present I sell honey to customers who come after it and bring containers. Most of them know that honey may crystallize if kept for too long a time in containers. To review briefly my method of processing, I would not wish to heat the honey too rapidly, because the intense heat would be likely to scorch or carmelize the honey. That is my reason for having the water not any hotter than the hand can bear. If I were putting up honey for the grocery stores, I would have a liquid thermometer and, after the honey was liquefied I would heat it to 160° Fahrenheit for at least fifteen minutes, then strain it. Instead of permitting the honey to fall directly from the strainer cloth into the bottom of the tank I would have a baffle board directly under the strainer cloth, which board would divert the honey over to the side of the tank, causing the honey to contact the side of the can and run down the side, in-

stead of falling down through the air. Honey that is permitted to drop through the air from the strainer cloth to the bottom of the tank is likely to incorporate air and this results in cloudiness, unless the honey is allowed to settle thoroughly before being put into containers. What appears to be minute particles of dust in your honey may be fine pollen grains. However, straining through two thicknesses of cheesecloth with very fine meshes should remove most of the particles. There have been instances where very minute particles have occurred in extracted honey and could not be removed. Just this morning I talked with the person here who has a great deal to do with processing honey, and he said that a few years ago a certain shipment of honey showed these very fine particles held in suspension when put into glass containers. Everything that they could think of was done to remove the particles, but to no avail. It was thought that these fine particles consisted of wax, at least a chemical analysis seemed to show this.—M. J. Deyell.

Amount of Honey Required to Produce One Pound of Bees

Question.—Approximately how much honey do bees use in feeding brood to produce one pound of bees?—Gilbert Barratt.

Answer.—Apparently there are no accurate figures available as to what it costs in honey to produce bees. In a study of "Natural Versus Artificial Swarming", R. L. Taylor in the "Ninth Annual Report Experiment Station State Agricultural College of Michigan" for the year ending June 30, 1896, page 167, as a side issue calculated the amount of honey required to produce a pound of brood, to quote from his report, "Making proper allowance we may say, till some crucial experiment is made, that it requires nearly two pounds of honey for the production of a pound of unhatched brood. Of course, much pollen is used in addition. If the mature bees during their active life use any considerable amount of honey with their more substantial pollen diet, that complicates the matter." The A B C and X Y Z of Bee Culture, last edition, pages 113-114, speaking of the "Amount of Honey Required for Brood-Rearing" mentions Mr. Pritchard's records for brood-rearing, to quote: "Five combs every 20 days is at the rate of one comb every four days, to produce which he feeds the equivalent of four pounds of honey. If no nectar is coming in from the fields, these colonies use a small amount of their reserve stores in addition to the quart of thin syrup per day. These figures agree closely with Taylor's figures of four pounds of honey to produce a frame of brood." Already there is considerable discrepancy as I am unable to find the quotation to Taylor other than the one mentioned, that is, 2 pounds of honey for one pound of brood. There are apparently very few estimates in the literature and no accounts of carefully controlled experiments. When a frame of brood is referred to, how many bees are indicated? The capacity of a Langstroth frame is about 5,000 bees, but it is doubtful if the "average full frame" of brood would be over 3,000. And how much is meant by a pound of bees? Five thousand bees to the pound is an oft repeated figure, but in all probability the true average would be closer to 3,500. Alfonsus estimated that it requires 144.9 mg. of pollen to produce a worker bee. The collection of this pollen, the conversion of part of it into royal jelly, all the work incident to comb building, egg laying, and defense of the colony, etc., all require honey and in my opinion the estimate that one cell of honey is required to produce one bee is entirely too low and that it is bad psychology to use such a figure. One of the greatest evils of beekeeping is the denial of sufficient food to colonies, resulting in weak, undernourished, unprofitable colonies not to mention the thousands that starve outright.—Jas. I. Hambleton, In Charge Division of Bee Culture, Beltsville, Md.

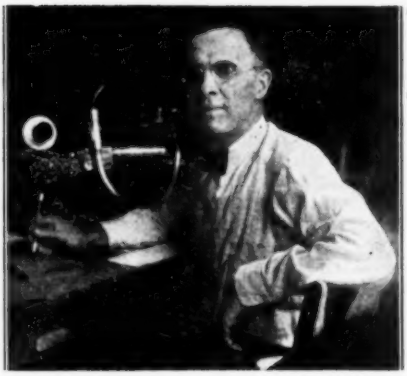
Destroying Moths

Question.—I had trouble with moths which got in my empty supers. Could you give me a remedy to permanently destroy worms in empty supers with combs?—M. D. Demko, Washington.

Answer.—We use carbon bisulphide. Two applications of this chemical are made, the second application, twelve days after the first one, in order to destroy the larvae that have developed from eggs after the first application. At 70° F. 10 cubic feet of space requires about two ounces of carbon bisulphide for complete saturation. In estimating the amount of bisulphide needed it should be remembered that the empty combs occupy a part of the super space.

XUM

Talks to Beekeepers



M. J. DEYELL.

Ups and Downs

Beekeeping certainly has its ups and downs. One day we are on the mountain and next day in the valley. And it is remarkable how quickly things can change for better or worse.

I recall some experiences in Michigan during 1917 and 1918. Wife and I were south of Traverse City with over 200 colonies producing wild raspberry honey. The first spring was terribly backward. On June 20 I hauled 60-lb. honey cans from a nearby town and had to wear a heavy overcoat to keep warm. That night we had a frost that killed all of our garden stuff and froze the milk in our pantry. We supposed that most of the raspberry bloom was destroyed. The future surely looked dark. However, in less than ten days the weather turned hot, the bees began working hard and we were busy putting on supers. We secured a fair crop of honey.

The following season the bees, after storing some surplus from raspberry, turned to sumac. They roared from morning until night for ten days and it seemed as though the flow might continue another ten days. Suddenly one afternoon a withering wind from the southwest sprang up and shut off the flow completely.

The season in this vicinity has been rather disappointing thus far. In western Ohio where we have some apiaries the flow has been better.

Even though we cannot control the weather we can and should have all colonies ready for all honey flows that may occur throughout the season. Sometimes this is easier said than done, because of unfavorable weather for normal colony development prior to the major honey flow.

During the season there were too many subnormal colonies when the main flow began. This was due largely to a shortage of stores at a critical time. When you have occasion to visit some commercial or back lot apiaries, note the difference in the heights of the piles of supers. We may not have to visit other apiaries to see this. This difference means simply that there was too great a variation in colony strength and quality of queens at the beginning of the honey flow. These defects can be corrected to quite an extent by more careful apiary management in the future.

Salt

Salt has many uses. It is indispensable to life. It preserves life. It also can be made to destroy life. This is why it is useful to the beekeeper.

Examine carefully the accompanying picture of the two hives and especially the ground in front of them. Salt was sprinkled in front of one hive quite early this spring. Note how free from grass the ground is, as compared with the hive to the right where no salt was used.

This is the first season we have salted the ground in front of and around hives in all of our apiaries. It has been used by some beekeepers for many years. It saves much labor in cutting grass and permits bees to leave and enter hives easily. It saves bee life and increases the honey crop.

Salt costs about one cent per pound and approximately that amount is needed for each hive. It should be applied early in the spring before vegetation gets well started. We salted almost 1000 hives this spring and the cost was $10.00. From the standpoint of labor and bee life saved I consider it a good investment.

Scale Hive

During the past six years we have used a scale hive in the home yard. This eliminates considerable guesswork and helps one to plan apiary work more intelligently. We record the weight early each morning before many bees leave the hive. I have weighed the hive late in the evening after all bees were home, then again early in the morning and found that the hive weighed at least 1½ pounds less in the morning than it did the previous evening. This is accounted for by the evaporation of moisture

from the nectar by the bees during the night.

Sweet Clover and Alfalfa

About twenty years ago sweet clover made its appearance in Ohio and a number of the mid-west states. It revolutionized beekeeping, especially in the Red River Valley. In Ohio and some of the other states it appears to be decreasing and is being replaced by alfalfa. The sweet clover acreage in Ohio is smaller than usual this year. Some claim that they get surplus honey from alfalfa. It seems to yield some nectar during dry seasons but is not as dependable a source of nectar as sweet clover.

The other day I talked with an intelligent farmer in Western Ohio about the clover situation. He didn't know I had bees so he gave me his unbiased opinion. He said that farmers do not like sweet clover because, (1) when it once gets started it grows up in practically all of the fields; (2), when grown for seed it does not mature uniformally; and (3), it is too coarse to handle easily. He did admit that it is a splendid soil builder.

Now if this is the general consensus of opinion among farmers, what is going to happen to beekeeping in regions where sweet clover has been the main source of honey?

This farmer was more favorable towards alfalfa. He said some commercial concerns came in and cut it and took it away. Alfalfa is cut three times during a season, as a rule, but the worst part of it is that it is likely to be cut before the bees have a good chance at the blossoms.

I guess there is no use of worrying too much about this situation. Possibly the present soil conservation program will include sweet clover. As a matter of fact, it is being recomended for the rejuvenation of depleted soil.

Extracting from Back Lot Apiaries

The accompanying picture shows the equipment needed by the back lot operator for extracting and straining honey for the local market. Be sure to have the extracting equipment in a basement or building that is bee proof.

Management of Food Chambers

During a heavy and rapid honey flow populous colonies may have comparatively little honey in the upper brood chamber, or food chamber at the close of the flow, if the queen excluder is left above the double brood chamber throughout the season. If, however, the flow is somewhat slow and intermittent the bees are likely to put considerable honey in the combs of the upper brood chamber. This upper brood chamber, or food chamber should be well filled in the fall and if the lower chamber contains a considerable amount of honey, all the better.

In regions where there is no fall flows it pays to put queens down in single brood chambers below excluders during late July or early August so that the food chambers may be well filled and also that queens may not rear brood in upper brood chambers or food chambers during the fall months.

In regions that give a fall flow the queens are likely to be driven down into the bottom brood chambers during the flow and the top chambers or food chambers filled with honey.

During the cool fall weather bees

A beginner's extracting outfit: An extractor anchored on a box, a wash boiler to receive cappings, a ten-pound pail to heat water on lamp stove, uncapping knives, honey tank, strainer cloths.

are less likely to put honey above than during warm summer weather.

Requeen When Necessary

Some beekeepers practice requeening all colonies during August. Theoretically, this is good practice, because, it helps to insure strong colonies for winter. We used to practice annual requeening regardless of the age of queens. We have no quarrel with those who still practice August requeening.

We find that many queens are automatically replaced or superseded during August and September, and, provided the stock is desirable, we think that the bees can rear queens that are as good, or perhaps better than any we could give them.

If, when we check colonies in the fall, we find an old queen ready to be superseded we, of course, remove her and introduce a young queen. We do the same in the spring. And so we practice requeening only the colonies that have failing queens.

Bricks

Most of us have some system of keeping hive records. We use a wooden block 6"x2½"x$\frac{5}{16}$" with a small hole in one end to hang on a nail in front of each hive. This contains records for a season. The tag is painted when filled with records (which may, if desirable, be transferred to a book) and the tag is then ready for another season.

On excessively hot days strong colonies will cluster out of the entrance if too small. To get a crop of honey one should have a large force of bees. The clustering out may be remedied by staggering the supers, shoving one forward and the next backward. As soon as the hot weather lets up the supers should be shoved back. When cooler weather comes on cold air should not blow over the combs.

However, we find bricks convenient to use for records. For example, when colonies are being examined to see if supers are needed we may find a hive that will need a super soon. The brick is placed on edge. When the yard is visited again we can tell at a glance where supers are needed. In the spring colonies that are short on stores may be marked with the brick crosswise.

Using salt to keep down the grass in front of the hive is an aid to heavily loaded bees when alighting.

When the grass is allowed to grow up around the entrance the bees are hindered in their work.

Buy and Sell Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate—7 cents per counted word each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in the 10th of month preceding.

HONEY FOR SALE

NEW COMB and extracted in season. H. G. Quirin, Bellevue, Ohio

CHOICE white clover honey in new 60's. Noah Bordner, Holgate, Ohio.

EXTRA QUALITY clover extracted. Howard Grimble, Holcomb, N. Y.

FOR SALE—Extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

HONEY—Light and light amber extracted. F. W. Lesser, Fayetteville, N. Y.

CHOICE MICHIGAN clover honey in new 60's. David Running, Filion, Mich.

FINEST quality, new comb honey, also extracted. N. B. Querin, Bellevue, O.

CHOICE clover honey in 60's. R. C. Bish, successor to Moore Apiaries, Tiffin, Ohio.

CLOVER extracted, extra white, new sixties. Irvin Van Devier, Medina, Ohio.

TUPELO honey, barrels, 60's, 10, and 5 lb. pails. Mrs. William Nisbet, Sumatra, Fla.

CLOVER HONEY in sixties and comb honey. George Eykamp, R. D. 6, Evansville, Ind.

FOR SALE—Fancy Iowa white-clover extracted honey. Kalona Honey Co., Kalona, Iowa.

ORANGE, palmetto and mangrove honey in new sixties. Peter W. Sowinski, Fort Pierce, Florida.

FOR SALE—White clover extracted honey in 60-lb. cans. L. S. Griggs, 711 Avon St., Flint, Mich.

EXTRACTED clover and amber honey. Quotations on request. Scott Traxler, Scottsburg, N. Y.

TUPELO HONEY, new 60's and barrels, 5 and 10 lb. buckets. Marks Tupelo Honey Co., Apalachicola, Fla.

WHITE clover comb, No. 1 $3.50; Fancy, $4.00; clover extracted in 60's, 7c. F. J. Smith, Castalia, Ohio.

FINEST QUALITY white clover honey, $7.00 per case, 120 lbs. Sample 10c. Arthur Thayer & Sons, Freeland, Mich.

SOME extracted in sixties left but all comb and chunk is sold until new crop. Herman Crowther, Cass City, Mich.

FOR SALE—Here we come for your patronage. With tons of fine clover. Sample free. W. S. Earls, New Canton, Ills.

COMPLETE line comb and bottled honey, pure clover. Also packed in 5's and 60's. Central Ohio Apiaries, Inc., Millersport, Ohio.

HONEY PACKERS—Write us for prices on carload lots of California and western honeys. We stock all varieties. Hamilton & Co., 1360 Produce St., Los Angeles, California.

NEW CROP clover. Extracted in new 60's, 6½ cents. Fancy comb $3.50 a case, No. 1, $3.00. Walter A. Wood, Naples, N. Y.

HONEY FOR SALE—All kinds, any quantity. H & S Honey & Wax Co., Inc., 265-267 Greenwich St., New York, N. Y.

LET US show you how you can save on your honey purchases. We also buy honey. H. Blitz, P. O. Box 3452, Philadelphia, Pa.

NEW CROP, extra white clover extracted honey. New cans. Price on request. Sample 10c. Frank R. Parmelee, Le Roy, N. Y.

FANCY white comb honey $3.00 case; No. 1 amber, $2.75; White clover extracted, 7c lb.; amber clover, 6c. C. B. Howard, Geneva, N. Y.

SELECT LOTS white clover, buckwheat, basswood, and light amber honeys in 60-lb. tins. A. I. Root Co., 224 West Huron Street, Chicago, Illinois.

NEW SWEET clover comb, 14 to 16 oz., well capped, extra nice, white, in new shipping cases, $3.50 case. Clarence Engle, Kearneysville, W. Va.

FOR SALE—Fancy clover and sweet clover extracted honey in 60-lb. cans. Also Fancy and No. 1 clover comb at market price. Carlton D. Howard, Ovid, N. Y.

NEW YORK State Comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails my specialty. Edward T. Cary, Midland Ave. and Tallman St., Syracuse, N. Y.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTE—We will not guarantee any honey buyer's financial responsibility and advise all beekeepers to sell for cash only, or on C. O. D. terms except when the buyer has thoroughly established his credit with the seller.

WANTED—Carload lots only. J. Hassan, 300 N. Beaudry Ave., Los Angeles, California.

WANTED—New York State comb honey, in 4¼x1½ sections. K. Smith, West Granville, N. Y.

WANTED—Comb and extracted honey. Wm. March, 12801 Woodland Ave., Cleveland, Ohio.

WHITE and light amber extracted and comb honey. George Eykamp, R. D. 6, Evansville, Ind.

WANTED—White clover honey. New cans only. Clover Blossom Honey Co., 721 Kossuth St., Columbus, O.

COMB and extracted honey—any quantity. We sell pure maple syrup and sugar. R. C. Poland & Co., Jefferson, Ohio.

WANTED—Carlots honey; state quantity, shipping point and price. Mail sample. Bryant & Cookinham, Inc., Los Angeles, Calif.

Honey Wanted

Cash paid for cars and less than cars.

Send samples and best prices.

C. W. Aeppler Company
Oconomowoc, Wisconsin

WANTED—White and amber extracted honey. Fancy comb, also No. 1 comb honey. Comb honey in shallow extracting frames. Beeswax. We render old comb into wax. Prompt remittance. Write us.
THE FRED W. MUTH CO. • CINCINNATI, O.

MOUNTAIN GRAY QUEENS

Do you want gentler bees? If so, introduce some of our Caucasian queens into your colonies. Untested, 50c; tested, $1.50; select tested, $2.00. Order now while you can get these queens at above prices. Service and queens guaranteed.

BOLLING BEE CO., Bolling, Ala.

Quality Italian Queens

PRICES

One for ....$ .35
Three for ... 1.00

W. O. GIBBS
Willacoochee, Ga.

CASH PAID FOR carloads and less than carloads of extracted honey. Send sample and best price. C. W. Aeppler Company, Oconomowoc, Wis.

WANTED—Five tons shallow frame light chunk comb honey in supers. Box 33, Gleanings in Bee Culture, Medina, Ohio.

AMBER and WHITE extracted, also Comb Honey and Beeswax. Alexander Company, 819 Reynolds Road, Toledo, Ohio.

WANTED—Comb, chunk comb, white and light amber extracted honey. Any amount. Central Ohio Apiaries, Millersport, Ohio.

CASH PAID for extracted clover honey. Send sample and best price. Clover Bloom Honey Co., General Delivery, Shrewsbury, Mass.

HIGHEST cash returns made the day we receive your beeswax. Write for shipping tags and quotations. Walter T. Kelley Co., Paducah, Ky.

WANTED—All grades of comb and extracted honey. Bee supplies and honey containers for sale. Prairie View Honey Co., 12243 12th St., Detroit, Mich.

FOR SALE

BEST Bee Hunting Outfit. Grover, Brittle, Vermont.

QUEENBEE PAINTING outfits $1.00 postpaid. Southwick Apiaries, Waban, Massachusetts.

FOR SALE—German foundation press, jumbo size, $15.00 net. B. F. Hardison, Grantsboro, N. C.

COMB honey sections—good quality $7.50 per thousand. Postage collect. Samples 15c. Harold M. Case, Pierpont, Ohio.

GLASSWARE, Bee Supplies, at factory prices. Write for quotations. Alexander Company, 819 Reynolds Road, Toledo, Ohio.

BEST QUALITY queen mailing cages, freight paid. Free sample. Bee shipping cages. Vernon Homer, Rt. 5, Menomonie, Wis.

BRIGHT, once used sixties in corrugated paper cartons, 15c here. Any number. Will take honey in payment. Central Ohio Apiaries, Inc., Millersport, Ohio.

COMB FOUNDATION at money-saving prices. Plain, wired and thin section. Wax worked at lowest rates. Comb and cappings rendered. Robinson's Wax Works, Mayville, N. Y.

FOR SALE—Slightly used 60-lb. cans, perfect condition, write for prices, any quantity. Will buy your honey crop in these cans. Cloverdale Apiaries, Fredonia, N. Y.

WAX worked into high quality medium brood foundation, 15c pound; 100 lbs., $10.00; thin super, 22c. Medium brood foundation, 10 lbs., $4.50. Fred Peterson, Alden, Iowa.

WRITE FOR CATALOG. Quality bee supplies at factory store prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Bee Supplies, Onsted, Michigan.

QUEEN-rearing outfit for sale, bees and supplies, everything complete, health certificate since 1916. Everything in good shape, am going out of business. All Root goods, 30% discount on the lot. Do not answer this advertisement unless you have twelve hundred dollars to put up. W. G. Lauver, Middletown, Pa.

ATTRACTIVE prices on bee supplies and comb foundation. Send for catalog. Saves you money. The Fred W. Muth Co., Pearl and Walnut Sts., Cincinnati, Ohio.

THE ONLY complete line of wax rendering equipment ever offered—the "Perfection" Line. A size and type suitable for every commercial beekeeper. Write for descriptive circular. Robinson's Wax Works, Mayville, N. Y.

SAVE MONEY by letting us work your wax into wired or regular comb foundation. Large catalog describes everything. You pay only wholesale factory prices, as we have no agents. Walter Kelley Co., Paducah, Kentucky.

BEES AND QUEENS FOR SALE

NO MORE queens for sale. W. C. Lauver, Middletown, Pa.

QUALITY BRIGHT ITALIAN QUEENS, 35 cents each, 12 for $4.00. D. W. Howell, Shellman, Georgia.

ONE 75c three-band Italian queen free to every new customer. L. H. Wagoner, Elon College, N. C.

CAUCASIANS—Untested queens, 40 cts. each, until Oct. 1st. Lewis & Tillery Bee Co., Greenville, Ala.

Empire State Italian Queens, bred for honey production, 50c each. B. B. Coggshall and Son, Groton, N. Y.

REAL PETS—Brown's Stingless Bees—Queens, $1 each. Brown's Apiary, Cape May Court House, N. J.

NORTHERN BRED queens, bright hardy Italians, 50 cents each. Six $2.75. Shirl Baker, Rodney, Michigan.

ABOVE - THE - AVERAGE—Queens, 40c each; 25 or more, 35c. We close our queen business Aug. 15th. D. P. Green, Deland, Fla.

IMPROVED Italian Queens, 50c, from a strain that produced over 600 pounds of honey per colony. Henry Loehr, Coldwell, Texas.

FOR SALE—30 strong colonies of healthy Italian bees in 10-fr. metal top hives, $10.00 each. Satisfaction guaranteed. A. E. Crandall, Berlin, Conn.

WILL SELL 150 two-story colonies of Italian bees. Young queens, ten frame equipment. First class condition. F. J. Jones, Sauquoit, N. Y.

GOLDEN ITALIAN bees and queens, extra good workers and very beautiful to look at. Queens 50c each, any number. Carolina Bee Farm, Graham, N. C.

GOLDEN QUEENS—Excellent quality. Hardy, gentle, productive, health certificate, satisfaction guaranteed, 50c. O. E. Brown, Route 1, Asheboro, North Carolina.

CAUCASIANS—Tested queens, $2; untested, $1; 10, 75c; 50, 65c; 2-lb. packages with queens, $2; 3-lb. packages, $2.50. Miller's Caucasian Apiaries, Three Rivers, Texas, Oldest exclusive Caucasian breeders west of the Mississippi.

FOR STRONGER COLONIES, bigger honey crops, and gentler bees, try our prolific well-bred 3-banded Italian queens used for years by leading beekeepers of the U. S and Canada. Select young laying queens, 50 cents each; ten, 45 cents each; twenty or more, 40 cents each. Prompt deliveries, no disease. We have one of the largest best equipped queen rearing places in the South. H. C. Short, Fitzpatrick, Ala.

YORK'S

Package Bees and Queens

Quality-bred Italians

Untested queens, 60c each; 25 or more, 50c each. Tested queens, double price of untested.

2-lb. pkgs. bees with queens, ...$2.00 each

3-lb. pkgs. bees with queens, ... 2.50 each

Adverse weather conditions retarded production considerably on early bees and large demand taxed us to capacity. However, this is overcome and we are prepared to fill your orders without delay. Full weights, young bees, safe arrival, and satisfaction guaranteed.

YORK BEE COMPANY

Jesup, Georgia. U. S. A.

(The Universal Apiaries)

Shaw's Italian Queens

This famous strain of Three-banded Italian Queens has made me hundreds of friends. Customers who have purchased them continually since 1923 attest to their merits every season. I will have around 2000 of these ready for shipment, in August and can give 24-hour service up to this amount. If you don't like their looks upon arrival, send them back, and your money will be returned, also the postage for returning them.

—Price—

Untested 30 cents each

Three months old tested, 60 cents ea.

A. E. Shaw, Shannon, Miss.

Mack's Queens

(They Speak for Themselves)

Hardy Northern-Bred Italians guaranteed to be as good as money can buy. Orders filled same day as received. 25 years as a breeder is your assurance of truly fine queens.

50c each; 10 or more, 40c each.

HERMAN McCONNELL

(The Bee & Honey Man)

Robinson, Rte No. 2, Illinois

Moore's Strain

LEATHER COLORED ITALIAN QUEENS—SUPERIOR STOCK

50c each

World-wide reputation for honey-gathering, hardiness, gentleness, etc., since 1879. Safe arrival and satisfaction guaranteed. Circular free.

J. P. Moore

R. 3, Falmouth, Ky.
Former address, Morgan, Ky.

Queens of Quality

30c EACH, ANY NUMBER
By Return Mail

Bright 3-Band Italian Bees and Queens of Highest Quality. Purely mated, Safe arrival and Satisfaction guaranteed. Packages express collect. Health Certificate furnished.

No stamps accepted.

Untested Queens, ...	$ .30
Tested Queens, ...	.60
2-lb. pkg. with Queen, ...	1.25
3-lb. pkg. with Queen, ...	1.50

JOHN A. NORMAN
Route 2. Ramer, Ala.

MORLEY PETTIT

thanks his many friends and customers for good package bee trade.
We have tried hard to give good service and believe no other shipper has done better.
Have plenty of good queens for all comers. 1-11, 55c; 12-23, 50c; 24-49, 45c; 50-up, 40c.
Let us take care of your requeening needs.
Write us when planning for 1942 packages.
MORLEY PETTIT, Tifton, Georgia

WE WILL SHIP NO BEES OR QUEENS

the remainder of this year but will be prepared to give you better service with the best in Caucasian bees in 1942.

CAUCASIAN APIARIES
Brooklyn, Ala.

QUEENS

THREE-BAND ITALIANS

40c each. Lots of 10, 35c each

THE CROWVILLE APIARIES
Winnsboro, La., Rt. 1

CHOICE BRIGHT Italian queens that are a pleasure to work with. This stock has been bred and selected in the North the past 37 years, for good winterers, hustlers, and gentleness. Price 65c each and $7.00 a doz. Emil W. Gutekunst, Colden, N. Y.

EXTRA YELLOW Italian queens that produce bees a little more yellow than three-banded; more gentle and just as good workers. Untested, 50c each; tested, $1.00. Health certificate and satisfaction. Hazel V. Bonkemeyer, Randleman, N. C. Rt. 2.

NORTHERN BRED, leather-colored Italian Queens, 35c, 3 for $1.00 in adjustable introducing cage. We cooperate with good honey producers in the selection of our breeding queens and believe our stock to be as good as you can buy. Diemer Bee Co., Liberty, Mo.

FOR SALE—One thousand colonies Italian bees with locations, located in fine honey producing section of central New York. Supers, winter cases and all equipment. Bees are free from disease, and a certificate of inspection will be furnished. Fred D. Lamkin, Union Springs, New York.

WANTED TO BUY

WANTED—Good used hand extractor. O. B. Starns, Paint Lick, Kentucky.

HELP WANTED

WANTED—In September, strong reliable man, with some experience. Possibility of permanent position. Send references, state wages expected. Ray Wilcox, Odessa, N. Y.

EXTRACTORS FOR SALE

One 2-frame reversible honey extractor with 12" pockets. In good condition. One 3-frame honey extractor with power drive. In very good condition. Both extractors are priced reasonable. Write G. L. Zaruba, Yale, Iowa.

MISCELLANEOUS

WILL trade $1800.00 equity in modern home on acreage for bee equipment and part cash. Charles Jenkins, Ainsworth, Iowa.

MAGAZINES

THE INDIAN BEE JOURNAL—The only bee journal in India. Sample copy free. Yearly 7c6d. Apply Editor, Indian Bee Journal. Jeolikote, Dist. Nainital, U. P. India.

READ the South African Bee Journal to be conversant with conditions from our afield. Subscription 5/ per year. For further particulars, write to the Hon. Treasurer, P. O. Box 43, Cleveland, Johannesburg, S. Africa.

MANY beekeepers have proven raising fox, mink, nutria, muskrats, rabbits, highly profitable. Send dime for sample copy Canada's oldest fur farming magazine telinig how. Fur Trade Journal of Canada, Box 31, Toronto, 2, Ontario.

THE BEE WORLD—The leading journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy post free, 12 cents stamps. Membership in the Club, including subscription to the paper, 10/6. The Apis Club, L. Illingworth, The Way's End, Foxton, Royston, Herts, England.

LEST YOU FORGET
the good rule to go by. Buy your
Italian Bees and Queens
from
Alabama Apiaries, Mt. Pleasant, Ala.
2-lb. packages with queen, ...$1.75
3-lb. packages with queen, ... 2.25
Queens, ... .50
No order too small or too large. We are in position to make prompt shipments. Our aim—once a customer always a customer.

Canadian Queens

Choice Italian queens raised here at Troy, Ont., Can. Sent by return mail, postpaid at 50c each. Tested, $1.00. All kinds of quality Bee Supplies at reasonable prices.
LORNE SHELLY
Troy, Ont.

Queens by return mail 25c

2-lb. Package with Queen, ...$1.25
3-lb. Package with Queen, ... 1.60

BRIGHT 3-BAND ITALIAN, guaranteed in every respect. Packages F.O.B. Express.
NORMAN BROS. APIARIES
Ramer, Alabama

LAWRENCE PRITCHARD
Third Generation
of
PRITCHARD QUEEN BREEDERS
13 years' training in North and South
Unlimited Supply of Good Italian Queens, 50c each; 10 or more, 45c each.
YOU MUST BE SATISFIED
PRITCHARD APIARIES
SYLVESTER, GA.

ITALIAN -- CARNIOLAN CAUCASIAN -- QUEENS

Reared in separate apiaries
RONALD KIRK, Rockton, Pa.
Price 50 cents each.

Vigorous 3-banded Italian Queens

Present Prices
25c each.
HOMAN BROS.
Shannon, Miss.

SAVE WEAK COLONIES

Fall Requeening

may play an important part in the amount of honey gathered next year. Weak colonies can generally be made strong by requeening. Colonies strong in the fall will winter better. Under proper management they will build up for the main honey flow.

ITALIAN QUEENS

1-10, 75c ea.; 10 and over, 70c ea. Outside U. S. and Canada, $1.00 ea.

Airmail or express charges extra.

The A. I. Root Co.
Medina, Ohio

QUEENS that are Second to None

Italians Caucasians

1 to 25 .....$ .50 each
26 to 99 ..... .45 each
100 or more ..... .40 each

No disease.
Satisfaction guaranteed

WEAVER APIARIES, NAVASOTA, TEXAS

St. Romain's "Honey Girl" Italian QUEENS 30c

Carefully reared for superior qualities. Write or wire your orders.
Satisfaction guaranteed.

A. D. St. Romain, Hamburg, La.

Italian Queens

Shipped same day order is received
40c each

CITRONELLE BEE CO.
Citronelle, Ala.

Queens--Queens

Three-banded Italian, extra fine honey-gatherers and very gentle to work with. Select Untested, 50c each, any number. A health certificate with every order. Every queen guaranteed to be good or we replace them.

ALAMANCE BEE COMPANY
Geo. E. Curtis, Mgr. Graham, N. C.

Australian Beekeeping News
The Leading Bee Journal of the Southern Hemisphere is the
"Australasian Beekeeper"

Subscription 5 shillings per year. Start any time. Inquire for International Money Order for five shillings (Australian) at your Post Office.
Write now to The Editor, P. O. Box 20 West Maitland, New South Wales, Australia.

JUST NEWS

(Continued from page 521)

6 Woodman's original folding wire bee veil.
6—10" hive tools.

In addition to the above there will be a quantity of Queen Bees given and prizes of a less serious nature.

Each beekeeper should register and receive an identification tag with his name and address on it and serial number to enable him to be in on the drawing for the above prizes. There will be a registration fee of 10c or 15c to help cover the cost of the identification tags and other expenses of the meeting.

• • •

The Sixth Annual Wabash Valley Beekeepers' Round-up is to be held Saturday, August 23, at Twin Lakes in Paris, Illinois. To you who have attended the Round-up in former years at the home of Lee Stewart in Newport, Indiana, the Round-up needs no introduction. But you beekeepers who have never attended one of these Round-ups have missed one of the season's rare treats. Plans have been made to make this meeting the largest of its kind ever to have been held in the Midwest. It is the one day in the year when beekeepers are asked to forget their worries and troubles and make the day one happy occasion. For those who come early a Friday evening luncheon will be held at the Hotel France at 6:30 P. M. A postal card to the host for reservations at this luncheon would be appreciated. The host is Carl E. Killion, 908 Marshall St., Paris, Illinois.

The following program has been planned for the Round-up:

9:00 A. M.—Introduction and welcoming selections by the Paris band.
A Round-up Welcome, by Mr. Geo. A. Bridgeman, Mayor of Paris.
Our State Association, by Adam Bodenschatz, President of the Illinois State Beekeepers' Association.
The Division of Apiaries and Its Relation to the Department of Agriculture, by Hon. Howard Leonard, Director of the Illinois Department of Agriculture.
Honey Can Bring More Money, by Mrs. Harriett M. Grace, American Honey Institute, Madison, Wisconsin.
The Beekeeper, The Manufacturer, and the American Honey Institute, by Mr. Lewis W. Parks, Pres. of the G. B. Lewis Company, Watertown, Wisconsin.

LUNCH

1:00 P. M.—Honey Production in the Wabash Valley or 4-H Club Work in Beekeeping, by Lee Stewart, Newport, Indiana.
Address by L. C. Dadant or G. H. Cale, Dadant & Sons, Hamilton, Illinois.
Manufacturer's Problems by Walter T. Kelley, Walter T. Kelley Co., Paducah, Kentucky.
Honey Care and Storage by Dr. V. G. Milum, University of Illinois, Champaign, Illinois.

The North Dakota Beekeepers' Association held its annual picnic and field day on the campus of the North Dakota Agricultural College, Fargo, July 15. There was a registered attendance of 68 for the day's session, a number of whom were present from the neighboring states of Minnesota and South Dakota. The beekeepers met at the Experiment Station apiary where methods of management were demonstrated with the beekeepers entering into the discussions, all of which were informal. A complimentary noonday luncheon was served by the local Chamber of Commerce Club. The visitors were welcomed by Frank L. Eversull, President of the North Dakota Agricultural College. II the afternoon the women folk met with Miss Constance Leeby of the College Home Economics Department to hear a most interesting talk on results of her experimental work in honey cookery. Delegates were conducted through the college orchard and horticultural plots by Professor O. Grottoden to see hardy and improved varieties of fruits being developed for this section of the country. Mr. Charles Hausmann, President of the Association, was the presiding officer. J. A. Munro

May Prices Reduced

on Imported Strain Italian

PACKAGE BEES

After May 10th

2-lb. pkg. with queen, ...	$1.60 each
3-lb. pkg. with queen	2.10 each
Loose queen pkg. add	.15 each
Nuclei with one frame add ..	.30 each
Queens, untested	.50 each

Gentle, Prolific and Vigorous

"They Produce"

More surplus and are conservative of stores for winter.

Rossman & Long

Box 133. **Moultrie, Ga.**

Beekeepers' Best Friend

American Honey Institute

"Old Favorite Honey Recipes"

This new 40-page Honey Recipe Book, off the press just recently, is a gold mine of information on honey and its various uses. It measures 6" x 9" and is attractively bound. It is one more contribution to our industry by the American Honey Institute. For full information on securing copies, write

AMERICAN HONEY INSTITUTE
Madison, Wisconsin

CAUCASIANS

Extra gentle, prolific, long tongue, little inclined to swarm, dependable workers,—10% to40% ahead of Italians. Have report of individual colonies of my Caucasians gave 520 lbs. and 590 lbs. surplus. Breeding the same strain yet.

CARNIOLANS

Prolific at all times, very gentle, best of workers. One record of 435 lbs. average over whole yard. Beautifully white combs. My strain used in recent Iowa Exp. Sta. test showing Carniolans best for western and northern conditions. Supply many Agricultural Colleges and Exp. Stations with them. Free paper. Still have one imported (1939) breeder,—a remarkable one. No more till European war is ended. August is a good month to requeen.
Prices: Untested queen 1 to 5, 60c each; 6 or more 50c each. Tested $1.00 each. By Air Mail, 5c extra per queen.

ALBERT G. HANN
Glen Gardner, New Jersey

Bright Italian Queens
By Return Mail

Owing to our breeding and selecting method we have a bright strain of Italian bees that swarm less, build up fast, and are good honey-gatherers. If honey is your object order NORMAN'S QUEENS. All queens are guaranteed to be purely mated and to give perfect satisfaction or your money back. Young laying queens, 35c or 3 for $1.00; Tested queens, 60c each. 2-lb. package with young laying queen, $1.50 each; 3-lb. with queen, $1.95 each. Packages by express F.O.B. Queens by parcel post, postage paid. State Inspection Certificate. No stamps accepted.

NORMAN BEE CO., Ramer, Ala.

"She-suits-me" queens, 3-banded Italians, most excellent strain: One queen, 75c, 3 queens $2.00. Stamps accepted for single queen.
Koolairy veil, $1.50 postpaid, SAFIN queen cage, $1, for ten; 15c for one.

ALLEN LATHAM
Norwichtown, Conn.

FILTRATION OF HONEY

(Continued from page 488)

Honey processed in this manner is bright and clear, retains its flavor intact, and is not darker in color, moreover, the color is not altered in other ways, as would result from removing certain of the colored pigments. The pigments of honey are in a very highly dispersed state in solution, and are in no way affected by the process described above. Decolorizing carbons, of course, do alter the color of honey due to absorption of certain of the colored pigments. However, diatomaceous earth, and in particular the more rapid-filtering earths, have virtually no absorbing properties, their action in filtration being essentially a straining process. It might be mentioned also that freedom from subsequent granulation in filtered honey is in all probability due to the thorough removal of minute dextrose crystals that would act as crystallizing centers for subsequent granulation if allowed to remain in the honey. There is no evidence that particles of diatomaceous earth, even if they should gain entrance to the honey, could act as crystal nuclei to initiate crystallization. In fact, generally accepted theories of crystallization would preclude such a possibility.

It should be stressed that the effects produced on honey by filtering as described above are obtained when rapid-filtering diatomaceous filter aids, comparable to those previously described by the writers (8, 9) are used. The use of slower-filtering grades of this material, while producing slightly better clarity, due to the smaller openings through which the honey must pass, results in slower filtration. In this case, removal of some of the more grossly dispersed colloidal particles may also take place. There appears to be no worthwhile advantage in using slower-filtering earths, since entirely satisfactory clarity and control of granulation can be obtained by use of the more rapid-filtering grades. In addition, the whole process is speeded up, and the honey is kept under heat for shorter periods of time.

There is no reason to believe that the process of filtration presents any mysterious angles or is little understood. By use of a rapid filtering diatomaceous filter aid, it is possible to filter honey very rapidly at comparatively low temperatures, thus obtaining a bright, clear product that retains its flavor and color

intact. Subsequent granulation is greatly delayed, and the honey will not tend to form objectionable surface scum layers. In addition, the natural constituents such as enzymes, minerals, etc., remain in the honey and are not removed or altered in any way.

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"YES"
Queens via Return Mail
No delays.
I ship when you want them.
Price List
Select Untested Queens, 50c each.
20 or more, 40c each.
Select Tested, $1.00 each.
All Queens Guaranteed Purely Mated.
W. E. Harrell
HAYNEVILLE Alabama

FOR SALE
ITALIAN BEES AND QUEENS
Nothing but the best.
Bright yellow and three-band queens, 35 cents each; 3 for $1.00.
You send for them, they shall go.
GRAYDON BROS.
Route 2. Greenville, Ala.

WE WILL BUY YOUR "CHUNK HONEY" IN THE SUPERS. . . . WRITE US TODAY.
THE FRED. W. MUTH CO. Pearl and Walnut Cincinnati, Ohio

Send your cappings and old comb to MUTH for rendering into beeswax. . . .
THE FRED. W. MUTH CO. Pearl and Walnut Cincinnati, Ohio

CARNIOLAN QUEENS
Customer writes: "Carniolan colonies produced more than the best Italians". Requeen with Carniolans—Queens, 50c; ten or more, 45c, postpaid. Airmail, 5c extra.
EPHARDT'S HONEY FARMS, TORRAS, LOUISIANA

Better-bred Queens
3-banded Italians
3 for $1.00
CALVERT APIARIES
Head all of your colonies with our better-bred Stock. They have proven their good qualities throughout the U. S. A. and Canada. Use them for increase, requeening and swarm control.
CALVERT, ALA.

SHIPMAST LOCUST

(Continued from page 489)

Mt. Kisco, New York, and at Round Hill, Connecticut. In fact, wherever you find an old Quaker Meeting House, in that locality you may find locust predominantly of the shipmast variety.

As the name indicates, shipmast is for a locust, exceptionally straight. It is of columnar habit with a smaller spread than the common black. It grows taller too, often reaching 100 feet or more, whereas common locust seldom exceeds 80 feet. Bark is a dark ashy-grey, thicker than common black, and having deeper fissures with fewer—or none at all—cross checks.

Apparently its wood is more durable than common locust, though this seems almost incredible. Near Westbury Raber says a fence of shipmast locust, authenticated, lasted 125 years. On removal in 1932 the posts were found to be in such good condition they brought 50 cents apiece on sale for the same purpose! The Quakers were good pickers of fence material. The other eastern timbers lasting as long are chestnut and cedar; while other sections have their redwoods or cypress.

Entomologists state it may yet prove to have far greater resistance than common locust to attacks of the locust borer; which of late years has been infesting the black locust. Experiments have not been completed, but Ralph Hall of the Bureau of Entomology, following a preliminary study of hundreds of plantations, finds shipmast, ". . . being much more resistant to the locust borer, one of the most desirable (locusts) encountered."

As a beekeeper I am more interested in the variety *Rectissima's* habit of flowering.

"Flowers are less abundant than on common locust." And again, ". . .are also less pubescent. Seedpods are extremely seldom found on shipmast". (Raber)

That sounds exactly like all the locusts I've ever seen hereabout. And that despite the fact common black locust is well known to be a prolific seed-bearer. On examination in fact, all locust groves examined in the vicinity of two apiaries appear to be of the shipmast variety. Further, Raber's study leaves a broad inference: namely, that few insects visit the flowers of this variety at any time. Yet we all know the heavy fragrance of these blossoms. And here anyway, locust is completely ignored by the honeybees year after year.

The variety also has fewer and sub-normal pollen grains. Raber states, " . . . only a 10% germination of pollen grains as compared to 75% for common locust. This suggests the possibility shipmast is a hybrid or sterile clone". So shipmast invariably is propagated by root cutting or sprout.

No nectar and little or no pollen. Perhaps black locust, or at least its reliability, must be re-valued in the light of this recently noted varietal difference. In any event it is apparent further study of honey plants and nectar secretion by no means would be a waste of time.

Katonah, New York.

2 Years $1.50

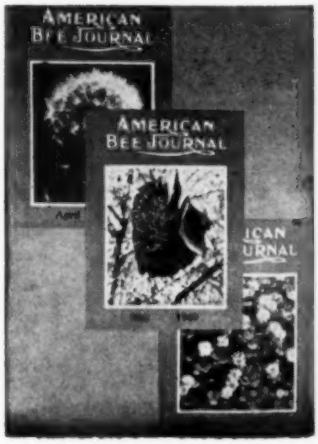
American Bee Journal—monthly: published and edited by beekeepers for beekeepers. Full of pictures and tips on care of bees and selling of honey.

—SAMPLE COPY FREE.

$1.00 a year, 2 years $1.50 in U. S. and Canada. Combined with Gleanings in Bee Culture, both magazines, **ONE YEAR, $1.60.** This offer good only in the United States.

Address—

American Bee Journal, Hamilton, Ill.



Carefully Selected Italian QUEENS---50c

Write or Wire Your Orders. Prompt Service Guaranteed.

The Puett Company, Hahira, Georgia

When You Want QUALITY at LOW COST Look For This Sign

KELLEY—"The Bee Man"

Queens

35c each or 3 for $1.00

Select Laying—3-banded Italian Queens shipped promptly from Paducah.

The Walter T. Kelley Co., Paducah, Ky.

←Morrison's Northern→

Leather-Colored Italians. Our foundation stock comes direct

←From Northern Italy→

QUEENS

Untested.....50c. Tested.....$1.00. Breeders.....$5.00

All queens guaranteed purely mated

The Cloverdale Apiaries, Cloverdale, Ohio

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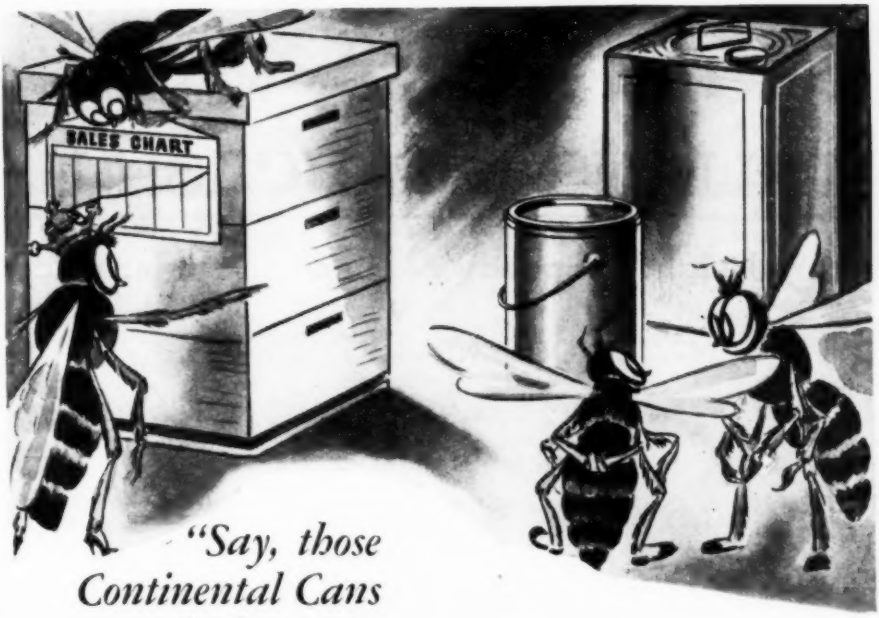

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